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PART 2

TECHNICAL INFORMATION & REQUIREMENTS

1.0 DESIGN-BUILDER’S SCOPE OF WORK

1.1 Project Description

The Project is located in Fairfax County, Virginia, along Route 29 (Lee Highway) between Pickwick Road and Union Mill Road. The purpose of this Project is to replace the structurally deficient bridge on Route 29 over Little Rocky Run with a 6-lane bridge and approaches. Pedestrian access will be provided on the proposed bridge with a shared use path on the south side of the bridge and a sidewalk on the north side.

The Project includes, among other things the Design and Construction of : (a) the Route 29 Bridge over Little Rocky Run, including parapets, fixed object attachments and guardrail, (b) widening and reconstruction of Route 29, (c) pedestrian facilities, (d) right of way acquisition, (e) drainage, (f) signing and pavement marking, (g) storm water management, (h) Traffic Management Plan, (i) erosion and sediment control, and (j) utility relocations within the Project limits.

1.2 Anticipated Design Services

Design services shall address all items necessary for construction and operation of the completed facility. Design services are anticipated to include but are not limited to: surveying, roadways, drainage, structures, pedestrian facilities, stormwater management, erosion and sediment control, temporary traffic control devices and Transportation Management Plan, pavement markings, signs, and guardrail. Other data collection and technical studies anticipated include, but are not limited to: further traffic analysis for signal operations, geotechnical investigation, borings and analysis, materials analysis, pavement design, foundation design, additional environmental studies, and hydraulic and hydrologic analysis. Offerors should note that all work performed on this Project shall be completed using English Units.

1.3 Anticipated Environmental Services

Environmental services shall address all items necessary for complying with the commitments identified in the November 19, 2009 Programmatic Categorical Exclusion (“PCE”) (included in the RFP Information Package). The Design Builder shall acquire all water quality permits for the Project in the Design-Builder’s name (i.e. the Design-Builder will be the “Permittee”) and shall provide for any necessary stream and/or wetland compensation required by permits to accomplish the work.

The Design-Builder will comply with all environmental commitments during design and construction as identified in the NEPA decision documents. This includes any NEPA related work such as the Document Re-evaluation for Right of Way Authorization, Document Re-evaluation for Plans, Specifications and Estimates Authorization, and Environmental

Certification/Commitments Checklist (all of which are included in the RFP Information Package).

The Design-Builder shall obtain all necessary environmental clearances and/or construction permits required to accomplish the work as noted in the Part 4, General Conditions of the Contract, Section 2.3. The Design-Builder will be the Permittee. The Design-Builder shall be responsible for performing necessary design and field investigations required to support acquisition of necessary water quality permits through the appropriate regulatory agencies.

The Design-Builder will be responsible for compliance with pre-construction and construction-related environmental commitments and will be responsible for compliance with pre-construction, construction-related permit conditions, as well as post-construction monitoring if required by regulatory agencies. The Design-Builder will assume all obligations and costs incurred by complying with the terms and conditions of the permits and environmental certifications. Any fines associated with environmental permit or regulatory violations will be the responsibility of the Design-Builder.

Any changes in scope proposed by the Design-Builder that are acceptable to VDOT may require additional environmental technical studies and analysis. The Design-Builder will be responsible for any additional environmental studies or analysis to support the Design-Builders proposed changes in scope. VDOT will be responsible for the preparation of NEPA document reevaluations to address those changes.

1.4 Anticipated Right-of-Way and Utilities

The Offeror's proposed design should be wholly contained within proposed right of way limits indicated in the RFP Plans, with the exception of temporary construction and permanent drainage and utility easements. Deviations from the proposed right of way limits shown on the RFP Plans will be subject to VDOT approval. It will be the responsibility of Design-Builder to coordinate directly with the affected property owners to acquire such right of way. The Design-Builder shall be responsible for assuming all risks associated with exceeding such right of way limits including any public hearings that may be required. No modifications to the Contract Price or Contract Time(s) will be granted or considered for deviating from the right of way limits as shown on the RFP Plans. All right of way acquisition costs (compensation paid to landowners for right of way or easements) will be paid by VDOT, and shall not be included in the Offeror's Price Proposal.

The Design-Builder's services shall include all work necessary to perform utility coordination, relocations, and/or adjustments as required by the Project. All costs for utility relocations, excluding betterments, shall be included in the Offeror's Proposal Price. Utility betterments shall not be included in the Offeror's Proposal Price but shall be reimbursed to the Design-Builder through agreement with the requesting utility owner. Betterments must be requested by and/or approved by the affected utility owner.

1.5 Anticipated Construction Services

Construction services are anticipated to include, but are not limited to: earthwork, roadway, bridge and structures (including all necessary excavation, foundation work, substructure work, and superstructure work), milling and overlay of the existing pavement, demolition and removal of existing structures, drainage, utility relocations/adjustments and coordination, storm water management, Transportation Management Plan, traffic control devices, erosion and sediment control and compliance with all environmental requirements, commitments and permit conditions. The Design-Builder shall provide construction engineering inspection and management, quality assurance and quality control, including plant quality assurance inspection and testing, but excluding items listed under Section 2.13.2 below.

2.0 PROJECT TECHNICAL INFORMATION & REQUIREMENTS

2.1 References and Information

The design, right of way acquisition and construction work for the Project shall be performed in accordance with the applicable federal and state laws and VDOT Standards, Specifications and Reference Documents to include, but not limited to the documents listed herein. The Design-Builder must verify and use the latest applicable version of the documents listed herein that were current as of the advertisement date of the RFP, or latest RFP addendum, for this Project. The Design-Builder must meet or exceed the minimum roadway design standards and criteria.

2.1.1 Standards and Reference Documents

If during the course of the design, the Design-Builder determines that a specific Standard, Specification or Reference Document is required but is not listed herein, it is the responsibility of the Design-Builder to identify the pertinent Standard, Specification or Reference Document and submit it to VDOT for review and approval before it is included in the Contract Documents.

The VDOT 2007 Road and Bridge Specifications, and its associated Special Provision Copied Notes, Special Provisions, and Supplemental Specifications, contain pricing language under sections entitled “Measurement and Payment” that is not applicable in the Design-Build context of this RFP. Thus, in accordance with the hierarchy of documents, the Design-Builder will refer to the Part 3 Articles 6 and 7, Part 4 Article 6 and the applicable portions of the Division I Amendments (Part 5) to the Standard Specifications for more information regarding the pricing and payment to the Design-Builder. Similarly, other references below which contain pricing methodologies for the “Contractor” shall likewise not be used. The requirements as described in the text of Part 2 herein take precedence over the referenced documents listed below, unless otherwise indicated.

The standards and references for the Project are listed below in the following order: (a) Standards and Specifications; (b) Reference Manuals; (c) Special Provisions List including Special Provisions, Special Provision Copied Notes and Supplemental Specifications. Items (a)

and (b) are published references that are available publicly, for which copies are largely not provided to the Offerors in this RFP package, but these items are to be used as manuals for design and construction. Item (c) is included with the RFP Information Package for the ease of the Design-Builder's reference.

(a) Standards and Specifications

- VDOT Drainage Manual, Revised 2011 (including current Errata Sheet)
- VDOT Hydraulic Design Advisories (all current)
- VDOT CADD Manual (Version 2009) (including 2010 revisions)
- VDOT Construction Manual (2005) (including July 2008 revisions)
- VDOT Post Construction Manual (May 2011)
- VDOT Construction Inspection Manual (April 2008)
- VDOT Traffic Engineering Design Manual (2011)
- VDOT Right-of-Way Manual of Instruction (January 2011) including July 2011 revisions
- VDOT Utilities Manual of Instruction (January 2011) including February 2011 revisions
- VDOT Appraisal Guidelines
- VDOT Current Land Use Permit Manual
- VDOT Policy Manual for Public Participation in Transportation Projects (updated August 2011)
- VDOT Instructional & Information Memoranda (“I&IM”), All Divisions
- VDOT Policy for Integrating Bicycle and Pedestrian Accommodations
- VDOT Road and Bridge Standards, Vol. 1 and Vol. 2 (2008) including all revisions through April 2012
- VDOT Road and Bridge Specifications (2007), (all except Section 100) including all revisions
- VDOT Guardrail Installation Training Manual (“GRIT”) May 2011
- VDOT Road Design Manual, Vol. I, including all revisions
- VDOT Guidelines for 1993 AASHTO Pavement Design, Revised – May 2003
- VDOT Survey Manual (2010 Edition) including 2011 revisions
- VDOT Manual of Instructions for Material Division including revisions through April 2012
- VDOT Manual of Structure and Bridge Division, Vol.V Series
- VDOT 2011 Virginia Work Area Protection Manual 2011
- Project Management Policy PMO-Policy-2011-1, dated July 1, 2011
- VDOT Traffic Engineering Division Numbered Memoranda (TE and MM)
- VDOT Materials Division Approved List
- VDOT's Minimum Requirements for Quality Assurance & Quality Control on Design Build and Public-Private Transportation Act Projects (January 2012)

- VDOT Materials Division Memorandum Number MD299-07 for Materials Acceptance – October 4, 2007
- VDOT Asbestos Inspection Procedures, dated May 4, 2004
- VDOT Asbestos Project Monitoring and Clearance Air Monitoring Procedures, dated May 14, 2004
- VDOT Post Award Scheduling Guide Release 2, July 2008
- VDOT Field Guide for Partnering, November 2005
- AASHTO LRFD Bridge Design Specifications, 6th Edition (2012); and VDOT Modifications
- AASHTO LRFD Bridge Construction Specifications, 3rd Edition, 2011 Interim Revisions, Single User Digital Publication
- AASHTO Manual of Bridge Evaluation, 2nd Edition, 2010, including current interims
- VDOT Guidelines for the Structural Coordination of Design-Build Projects administered by the Department Structure and Bridge Division, April 2008
- AASHTO A Policy on Geometric Design of Highways and Streets, 2001 and 2004
- AASHTO Guide for Design of Pavement Structures (Rigid Pavement and Flexible Pavement) (1993 Edition)
- AASHTO Guide Design Specifications for Bridge Temporary Works, 1st Edition 1995, 2008 Interim
- AASHTO Construction Handbook for Bridge Temporary Works, 1st Edition 1995, 2008 Interim
- AASHTO Guide for Roadway Lighting Design (2005)
- AASHTO Roadside Design Guide (2006)
- AASHTO Guide for the Development of Bicycle Facilities (1999)
- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004)
- AASHTO Manual for Assessing Safety Hardware, First Edition (2009)
- AASHTO Highway Safety Manual, First Edition (2010)
- NCHRP Report 350 Recommended Procedures for the Safety Performance Evaluation of Highway Features
- USDOT FHWA Standard Highway Signs and Markings (2004) and current interim releases
- FHWA 23 CFR 752 Landscaping and Roadside Development
- Guidelines for Context Sensitive Solutions/Design, dated February 25, 2004
- VDOT Memo for Guidance for Planting in the Clear Zone and Landscaping for VDOT Projects, dated November 2, 2000
- IEEE National Electric Safety Code
- IES RP-08-00, American National Standard for Roadway Lighting
- IES RP-19-01, Roadway Sign Lighting
- Corps of Engineers EM-1110-2-1906, Laboratory Soils Testing (1986)

- Engineering Properties of Clay Shales, Report 1 by W. Heley and B. N. McIver
- Approved Retaining Wall Systems List, dated February 25,2011

(b) Reference Manuals

- Bridge Welding Code: AASHTO/AWS-D1.5M/D1.5: 2008, with 2009 AASHTO Interim
- National Electric Code (“NEC”)
- Manual on Uniform Traffic Control Devices (“MUTCD”) (2009)
- Virginia Supplement to MUTCD (2011)
- DCR Virginia Stormwater Management Handbook, Vol. 1 and Vol. 2 (First Edition – 1999)
- DCR Virginia Erosion and Sediment Control Handbook (Third Edition – 1992)
- VA Statewide Fire Prevention Code (referenced in Special Provision for Section 107.11 - Use of Explosives)
- ISEE Blasters Handbook (Current Edition)
- Virginia Test Methods Manual (June 2010)
- Virginia Calibration Methods (October 2008)
- gINT Manual
- ModTag Manual
- Americans with Disabilities Act Accessibility Guidelines for State and Local Government Facilities
- Transportation Research Board Highway Capacity Manual, Fifth Edition (2010)
- DCR Virginia Stormwater Management Program Technical Bulletin 1
(See http://dcr.state.va.us/soil_and_water/documents/tecbtln1.PDF)
- Duncan, J.M. (April 2000) Factors of Safety and Reliability in Geotechnical Engineering, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, Discussions and Closure August 2001

(c) Special Provisions List, Special Provision Copied Notes and Supplemental Specifications

Federal:

- F01_c100ai03 General Project Requirements_Imperial_
- F02_SP-Project Communication and Decision Making for Design-Build Projects Reissued August 2009
- F03_SP_SS51202 Maintaining Traffic Design-Build Project December 2,2009

Environmental:

- E01_S107E02-0708 Volatile Organic Compounds (“VOC”) Emissions Control Areas, August 12, 2010
- E02_S107G01- 0309 Storm Water Pollution Prevention Plan (“SWPPP”) General Permit for the Discharge of Stormwater from Construction Activities Contractor and Subcontractor Certification Statement, February 19, 2009

- Special Provision for Management of Petroleum-Contaminated Soil, June 22, 2012

Geotech/Materials:

- M01_S302B00 Restore Existing Pavement 1-14-08
- M02_SPCN c109g03 Polymer Modified (PG 76-22 and PG 70-28) Asphalt Cement Adjustment
- M03_c211gg0-0609 Warm Mix Asphalt Pavement
- M04_c315gg0-0609 Warm Mix Asphalt Pavement
- M04_c248fg0-0708 Surface and Intermediate Mixes using RAP
- M05_SP_Controlled Blasting_4-14-2008
- M06_SP_Elastic_Inclusion_20091124
- M07_SS40402 Hydraulic Cement Concrete Operations
- Special Provisions for Planing Asphalt Concrete Pavement Design-Build Projects, November 2009
- SS20801-1210 Supplemental Section 208, Subbase and Aggregate Base Material, May 7, 2010
- SS21108 Supplemental Section 211, Asphalt Concrete, dated August 3, 2011
- SS21402-0908 Supplemental Section 214, Hydraulic Cement, dated January 28, 2008
- SS21501 Supplemental Section 215, Hydraulic Cement Concrete Admixtures, dated January 28, 2008
- SS21705-0911 Supplemental Section 217, Hydraulic Cement Concrete, dated January 27, 2011
- SS31507, Supplemental Section 315, Asphalt Concrete Placement, dated July 19, 2011
- SS40502-0211 Supplemental Section 405, Prestressed Concrete, dated December 20, 2010
- Special Provision for Micro Tunneling for DB Projects, September 14, 2009
- Special Provision for Jack and Bore for DB Projects, Dated October 13, 2009
- SS24501 Geosynthetics, dated December 9, 2011
- SS40101 Structure Excavation, dated November 16, 2010
- SS40402 Hydraulic Cement Concrete Operations, dated December 17, 2010
- S515B01 Cold Planing Asphalt Operations, dated September 27, 2011
- SS515 Planing or Milling Pavement, dated September 27, 2011

Roadway_Drainage:

- R01_SPCN c302h00 Precast Drainage Structures_QCQA
- R02_S302G02 Flowable Backfill
- R03_SU503000A RW Monumentation and Final Boundary Stakeout
- R04_SP_244 Roadside Development Materials_April 29, 2009
- SS23202-1210 Supplemental Section 232, Pipe and Pipe Arches, dated July 29, 2010
- SS30202-0911 Drainage Structures, April 13, 2011
- Special Provision for Section 605 Planting, August 5, 2011
- S504B00 CG-12 Detectable Warn Surface, Reissued July, 2008

Structure_Bridge:

- S01_SPCN-Demolition Notification for Structures Not Requiring Asbestos Removal
- S02_SP_Corrosion Resistant Reinforcing Steel May 18, 2012
- S03_SS41301-0609 Dismantling and Removing Existing Structures or Removing Portions of Existing Structures
- S04_SP_Drilled Shafts for Design Build and PPTA Contracts 20091118
- S05_SP_Dynamic Pile Testing for End Bearing Piles for LRFD for Design Build and PPTA Contracts_20091210
- S06_SP_Dynamic Pile Testing for Friction Piles for LRFD for Design Build and PPTA Contracts 20091210
- S07_SP_Micropiles for Design Build and PPTA Contracts 20100120
- S08_Survey and Vibration Monitoring during Construction 20120214
- S09_Wave Equation Analysis for LRFD for Design-Build and PPTA Contracts 20091210
- S10_Structure Demolition Design Build Project 20100107
- S11_Quality Assurance/Quality Control for the Construction of Deep Foundation Systems for Design-Build and PPTA Contracts 20091210
- Special Provision for Asbestos Removal and NESHAP-Related Demolition Requirements for Structures on Design-Build Projects, dated June 22, 2009
- SS22401, Supplemental Section 224, Castings, dated November 15, 2007
- SS2230AG0 Corrosion Resistant Reinf Steel, dated November 19, 2009

Traffic:

- SS70102-0410 Supplemental Section 701 Traffic Signs January 22, 2009
- T01_S704E02-1211 Type B, Class VI Pavement Line Marking Tape October 21, 2011
- T02_S704F01-1209 Transitory Pavement Markers (TPM) December 14,2009
- T03_c510am1-1010 Locating, Removing and Disposing of Recessed Pavement Markers and Raised Snow-Plowable Markers
- T04_cu512003a Uniformed Flaggers 9-29-08a(SPCN)
- T05_S504B00-0708 CG-12 Detectable Warning Surface
- T06_Emergency Preemption Equipment Design-Build Projects December 2,2009
- T07_Preformed Thermoplastic Pavement Markings November 29,2011b
- T08_S704GM2-1211 Replacement of Pavement Line Markings, Pavement Markers, and Loop Detectors September 27,2011
- T09_Square Tube Steel Sign Posts March 3, 2008
- T10_S704M02-1211 Temporary Construction and Permanent Pavement Markings November 8,2011
- T11_SS70301-0609 Supplemental Section 703-Traffic Signals
- Special Provision for Accessible Pedestrian Signal Equipment, May 2, 2011
- SS23802-0609 Supplemental Section 238, Electrical and Signal Components, dated March 4, 2008
- SS24701-0611 Supplemental Section 247, Reflective Sheeting, dated February 10, 2011
- SS70003-0609 Supplemental Section 700, General, dated June 9, 2008
- SS70401-1211 Supplemental Section 704, Pavement Markings and Markers, dated October 14, 2011
- S704E02 Ty B-Class VI Pavement Line Marking, dated October 21, 2011

General:

- G01_SPCN_cu105000a Personnel Requirements for Work Zone Traffic Control 6-11-09a
- G02_SP_514_Field Office Design-Build Projects_20091124
- G03_SP_Section105 02_Plans and Working Drawings June 13, 2007
- G04_SP_Clearing and Grubbing November 15,2006
- G05_SP_Work Zone Traffic Control Management Design-Build Projects Rev November 2009
- G07_SS52200-0708_Partnering Design-Build Projects December 2,2009
- G08_SP_DBTrackingNumbers_20091208
- SS1D013 Special Provision for 2010 Division I Amendments to the Standard Specifications, General Provisions for Design-Build Contracts Between Department and Design-Builder, dated May 25, 2012
- SPCN c105hf1-0309 Subcontracting, December 19, 2008

The above list of Special Provisions is not intended to be an all-inclusive list. The Design-Builder is responsible for achieving the Work in accordance with all current VDOT standards as of the date of the RFP issuance, including any revisions and/ or addenda thereof. If a construction element is not adequately addressed within VDOT Standard Specifications or the Special Provisions listed for the purpose of the Design-Builders design, it is the responsibility of the Design-Builder to develop an alternative specification that is acceptable to VDOT for that element of work.

In the event of a discrepancy between VDOT and non-VDOT Standards and References listed herein, the VDOT Road and Bridge Specifications, design standards, and manuals shall take precedence, with the following exception. If AASHTO or the MUTCD require that a higher or better standard be applied, then AASHTO and/or the MUTCD shall take precedence.

Supplemental Specifications included in this contract document shall govern over the VDOT specifications, design standards and manuals. Special Provisions included in this contract document or other applicable Special Provisions approved by VDOT shall govern over Supplemental Specifications, the VDOT specifications, design standards and manuals. Special Provision Copy Notes approved by VDOT and requirements specified within the text of this RFP shall govern over Special Provisions, Supplemental Specifications and VDOT specifications, design standards and manuals.

Within the conceptual design presented in the RFP Information Package, VDOT identified one design waiver that will be required to implement the desired type of structure on the Urban Principal Arterial system. This design waiver is being processed by VDOT, and the approved design waiver will be made available to the Design-Builder. Although none is anticipated, should the Offeror's Design Concept require any design exceptions and/or additional waivers, the costs for preparing and processing such exceptions and/or waivers (in accordance with I&IM LD 227, S&B 70) shall be included in the Offeror's Price Proposal. The Offeror shall assume that any design waivers and/or design exceptions that are justified and can be

mitigated, if appropriate, will be approved by VDOT for the purposes of preparing their bid. Any schedule delays as a result of the approval process are the responsibility of the Design-Builder.

2.1.2 RFP Information Package

An RFP Information Package CD-ROM will be provided to the point of contact for each short listed firm. The RFP Information Package includes the following:

- Special Provisions List: Special Provisions, Special Provision Copied Notes and Supplemental Specifications
- RFP Conceptual Plans including electronic reference files
 - Updated drawings b77322001.dgn, b77322002.dgn and b77322003.dgn
- Proposed Bridge Replacement Rte. 29 (Lee Highway) over Little Rocky Run- Preliminary Structure Report, Plans and Estimates, updated June 6, 2012
- Rte. 29 Bridge Replacement over Little Rocky Run – Bridge Hydrologic and Hydraulic Analysis Report (PFI Stage), dated November, 2009
- VDOT Permit Determination, dated April 30, 2012
- Programmatic Categorical Exclusion (“PCE”), dated November 19, 2009
- Document Re-evaluation for Plans, Specifications and Estimates (“PS&E”) Authorization, dated March 1, 2012
- Environmental Certification/Commitments Checklist, dated. May 3, 2012
- VDOT Hazardous Materials Summary Report dated January 21, 2011
- Air Quality Analysis Report dated February 2012
- Geotechnical Engineering Data Report, dated June 21, 2012
- Stormwater Management Report
- Preliminary Hydraulic and Hydrologic Study dated November 4, 2009
- Public Hearing Transcript
- Design Approval
- Value Engineering Report
- Utility Test Hole Data – Test Holes 01 – 78
- RFP Questions and Answers, dated August 15, 2012 (For Information Purposes Only)
- Approved Bridge Design Waiver, dated August 16, 2012

Requirements described in the Technical Requirements (Part 2 of the RFP) shall supersede information included in the RFP Information Package including the information depicted on the RFP plans. In the event that there is a discrepancy between the RFP plans (or other information included in the RFP Information Package) and the Technical Requirements (Part 2 of the RFP) herein, the Technical Requirements (Part 2 of the RFP) shall take precedence.

2.2 Roadway

The roadway inventory information and major roadway design criteria are summarized in the Design Criteria Table (Attachment 2.2). Offerors are on notice that the entirety of the information contained in the Design Criteria Table and Section 2.2 of Part 2, including but not

limited to the design criteria, and other notes and data, contain the minimum roadway geometric design requirements that the Design-Builder shall meet in its performance of the Work. By submitting its Proposal, Offeror certifies that the Project Concept presented in its Proposal is fully compliant with such minimum requirements. Unless otherwise approved by VDOT, no changes to or deviation from the listed criteria shall be allowed. Any schedule delays as a result of changes or deviation are the responsibility of the Design-Builder.

Functional Classification

Route 29 is classified as an Urban Principal Arterial. The VDOT geometric design standard that will be utilized for Route 29 will be GS-5 with curb and gutter and a minimum design speed of 50 mph. The Route 29 improvements begin approximately 0.2 miles east of Pickwick Road and continue to the intersection of Route 29 with Union Mill Road/Centreville Farms Road. Typical sections for Route 29 are provided in the RFP plans and generally consist of six (6) travel lanes (three northbound and three southbound) with an outside lane widths of 15 feet in each direction. A sidewalk that is five (5) feet wide along with a four (4) feet wide buffer from the back of curb will be provided along the southbound side of Route 29 and a paved Shared Use Path that is ten (10) feet wide along with an eight (8) feet wide buffer from the back of curb will be provided along the northbound side of Route 29 throughout the Project Limits.

All intersections shall be designed to accommodate, as a minimum, an AASHTO WB-50 design vehicle.

The Design-Builder shall make reasonable effort, satisfactory to VDOT, to ensure that the number of parking spaces is maintained on the Tree of Life Bible Church property when construction is completed.

2.3 Proposed Bridge Replacement over Little Rocky Run (B608)

2.3.1 General Requirements

A bridge is required at the crossing of Route 29 over Little Rocky Run. This bridge is to be designed to meet the hydraulic opening requirements as specified in Section 2.7.2, and the minimum lengths and widths indicated in the RFP Plans.

Construction of the proposed bridge and demolition of the existing bridge shall be staged as necessary to maintain two travel lanes of Route 29 in each direction at all times, and to meet other requirements in accordance with the approved Traffic Management Plan developed by the Design-Builder. A demolition and erection plan shall be developed by the Design-Builder and submitted to VDOT for review and approval prior to proceeding with final design. The demolition and construction of the existing and proposed bridge shall in no way impact the Verizon duct bank running along Route 29. Substructure elements shall be designed and detailed to span over the duct bank to the satisfaction of Verizon. (See Section 2.12 for additional information regarding utilities.)

The proposed bridge shall be designed using AASHTO LRFD Bridge Design specifications, 6th Edition, 2012; VDOT Modifications (IIM-S&B-80) and Additional Foundation Criteria (Attachment 2.3).

The Design-Builder is prohibited from any deviation from any of VDOT's bridge standards without allowance granted in this document or prior written approval from VDOT. VDOT's Standard Details, including VDOT Design Aids, are available from the VDOT website at <http://www.virginiadot.org/buisness/bridge-manuals.asp>. These standards, design aids and typical details shall be used to the maximum extent possible in the development of the plans. Future wearing surface loads and construction tolerance loads shall be utilized in accordance with IIM-S&B-80.

The proposed structures shall utilize low permeability concrete in accordance with the Special Provision for Low Permeability Concretes for Design-Build Projects.

Corrosion Resistant Reinforcing Steel shall be utilized in accordance with VDOT IIM-S&B-81. Plain deformed reinforcing steel bars shall conform to ASTM A615 Grade 60. Epoxy coated reinforcing steel shall not be used.

2.3.2 Bridge Layout

A preliminary type, size and location plan, including erection plan, of the proposed bridge shall be submitted by the Design-Builder to VDOT for review and approved prior to proceeding with final design. Bridge type and layout shall be based on reducing long term maintenance costs for VDOT. The use of continuous span units and jointless bridge design technology shall be utilized in accordance with VDOT S&B Manual – Vol. V Part 2, Chapter 17 (latest revision).

The bridge shall have a minimum nominal bridge length of 156'-0" measured from end of slab to end of slab at abutments along the construction baseline and have a maximum of three spans. The typical section of the bridge shall be designed to accommodate the approach roadway, pedestrian and multi-use trail facilities as well as any other requirements of the VDOT S&B Manual – Vol. V Part 2, Chapter 6 (latest revision). The minimum cross section requirements indicated in the RFP Plans shall be met.

The bridge shall be designed and constructed so that the piers and/or abutments do not impact the existing location of the natural channel of Little Rocky Run.

A Major Structure Report including foundation recommendations for the proposed bridge shall be submitted for review and approved prior to the submittal of final foundation construction plans and shall be signed and sealed by a Professional Engineer registered and licensed in the Commonwealth of Virginia.

The Design-Builder shall perform a Hydraulic and Hydrologic study for the crossing of Little Rocky Run and incorporate the results into the final bridge drawings in accordance with the VDOT Drainage Manual. This study shall include a scour analysis. A preliminary Hydraulic

and Hydrologic study was used to develop the RFP Plans and is included in the RFP Information Package for informational purposes only.

2.3.3 Superstructure

The proposed bridge shall use a superstructure type comprised of adjacent precast concrete slabs or adjacent box beams with a composite concrete deck or a cast-in-place concrete slabs. Cast-in-place voided slabs will not be allowed. The underside of the bridge shall have a flat, continuous bottom surface except at a permissible longitudinal joint. No permanent timber or steel bridge supporting elements of any kind will be acceptable in the proposed structure.

Precast slab elements may be voided or solid. These units shall be designed with a composite concrete deck in accordance with VDOT S&B Manual – Vol. V Part 2, Chapter 12.

The use of high performance concrete (HPC) in precast slab elements in excess of 8,000 psi concrete strength will require the approval of the State Structure and Bridge Engineer during final design. The use of HPC for precast slab elements in excess of 10,000 psi concrete strength will not be permitted.

The use of precast reinforced concrete three-sided structures or four-sided multi-cell boxes is not permitted. The use of segmental construction of any kind (post-tensioned box beams, segmental precast and/or balanced cantilever construction, post-tensioned spliced Bulb-T sections) is prohibited.

In accordance with Section 2.5.2.6.3 of the AASHTO LRFD Bridge Design Specifications, Criteria for Span to Depth Ratios and all criteria for deflections shall be mandatory. A live load deflection of $L/1000$ shall be adhered to for this bridge due to the presence of pedestrian and bicycle facilities.

Structural approach slabs will be required at each end of this bridge. Approach slabs and any sleeper pads shall be constructed to conform to the requirements of the VDOT S&B Manual – Vol. V Part 2 and Part 3.

Adequate drainage for the bridge structure must be provided; in particular, the designed system must be able to control and drain water from the deck. Bridge deck drainage analysis and design shall be performed in accordance with the latest version of FHWA Publication HEC21 – Design of Bridge Deck Drainage and the VDOT Drainage Manual. All deck drainage must comply with both the water quality and water quantity requirements per VDOT guidance documents identified in the RFP, Virginia Stormwater Management Program Regulations, and any specific requirements or commitments identified in Section 2.7.

2.3.4 Substructure

The proposed structure shall be designed to meet all applicable hydraulic requirements, including current FEMA and VDOT guidelines as described in the latest edition of the VDOT Drainage Manual. The Offeror shall deliver to VDOT a final Hydrologic and Hydraulic

Analysis and a final Scour Analysis for the proposed bridge design as noted in Section 2.7. These analyses shall be submitted to VDOT for review and approved prior to the commencement of bridge construction.

When spread footings are proposed, the Offeror shall conform to Section 401 of the VDOT Road and Bridge Specifications 2007, Structure Excavation. All pier spread footings shall be embedded into non-scourable material as defined in Section 2.7.6. The Design-Builder shall ensure that all recommendations related to the suitability of foundation material for spread footings at the time of construction are made in the field by a geotechnical engineer registered and licensed in the Commonwealth of Virginia. Foundation recommendations for the proposed bridge shall be submitted for review and approved prior to the submittal of final foundation construction plans.

When Drilled Shafts are proposed, the Offeror shall refer to the special provision entitled Drilled Shafts for design and construction requirements.

All foundation elements shall be extended to bear on non-scourable rock. Non-scourable rock is defined as rock with a minimum rock quality designation (RQD) of at least 50%.

This bridge shall use solid wall piers as detailed in the VDOT S&B Manual – Vol. V Part 2, Chapter 15.

2.3.5 Miscellaneous

A VDOT Standard BR27 series railing shall be used on the bridge in accordance with VDOT S&B Manual – Vol. V Part 2 and Part 3. The steel railing shall be galvanized.

No utilities are allowed to be attached the bridge. Future utilities shall be addressed by including 2” diameter conduits on the bridge as shown in the RFP Plans or as approved by VDOT.

2.3.6 Structure Load Ratings

The following structure load ratings analyses and reports will be required to be submitted to VDOT and approved prior to opening the structure to traffic (whether temporary or permanent traffic configuration) and shall represent hold points in the Design-Builder’s CPM Schedule:

1. A load rating is required when an existing structure is modified and is intended to carry traffic in a temporary configuration. Load rating shall include changed conditions and loadings, including temporary barrier services.
2. A load rating is required when a newly constructed structure or phased portion of the new structure is intended to carry traffic in a temporary configuration.
3. Load rating of any partial configuration of the existing structure.

4. A Demolition and Temporary Support Plan shall be submitted to VDOT for review and approval prior to the commencement of demolition.
5. A final, As-Built, load rating analysis of the new structure reflecting traffic in its final configuration. This load rating should incorporate any As-Built changes that may have been made, which in the judgment of the Engineer will affect the load rating (e.g., minor changes to stiffener or diaphragm locations may not affect a load rating).

The structure load rating analyses shall be performed in accordance with VDOT Structure and Bridge Division Instructional and Informational Memorandum (I&IM) Number IIM-S&B-86 – Load Rating and Posting of Structures (Bridges and Culverts); and AASHTO Manual of Bridge Evaluation, 2nd Edition, 2010 and 2011 Revisions; and 23CFR650 Subpart C - National Bridge Inspection Standards (“NBIS”), Subsection 650.301 or the latest revision(s). The Design-Builder shall perform load ratings on bridge superstructures using Load and Resistance Factor Rating method for the NBIS rating, AASHTO HL-93 design loading, the blanket permit vehicle (90K and 115K) and Virginia’s Legal Load vehicles as specified in I&IM-S&B 86.

All load ratings for structures shall be performed using AASHTOWare Virtis software, except structures with steel curved girders/beams or structures not capable of being analyzed by Virtis software. Horizontally curved bridges with curved longitudinal steel members shall be evaluated using DESCUS software with rating capability. All other load ratings shall be generated by hand calculations or by use of software approved by VDOT. The structures shall be rated as a system of girders, not as single structural elements (line girder analysis). Bridge Alternatives must be provided so the load rating(s) can be run from the Bridge Explorer in Virtis.

Each load rating report shall contain a completed copy of VDOT’s current load rating summary sheet referencing the controlling structural element(s) and shall be sealed and signed by a Professional Engineer licensed in Virginia. This report shall include rating assumptions, pertinent analysis calculations and VIRTIS, DESCUS or other approved computer input as appropriate. In addition, an electronic disk/DVD/CD containing the load rating input files for Virtis, DESCUS or other approved computer programs shall be delivered to VDOT with the report. The as-built report for the new bridges shall be submitted to VDOT not later than thirty days after completion of the bridge or prior to opening the structure to traffic, whichever occurs first.

No new structure shall be placed into service if a Load Restriction (Posting) is required based upon the load rating analyses. The Design-Builder is responsible for all remedial measures/corrective action required to provide VDOT a structure which satisfies the load rating requirement outlined in I&IM S&B-86.

2.3.7 Shop Drawings

The Design-Builder shall review and approve working/shop drawings and submit three approved sets to VDOT for the proposed bridge structure. Reference should be made to Article 105.10 of Part 5 of the RFP. The working/shop drawings shall be approved by a registered, licensed Professional Engineer in the Commonwealth of Virginia.

2.3.8 FHWA Bridge Construction Unit Cost Report

For the proposed bridge structure, the Design-Builder shall submit Estimated Quantities along with the associated unit costs for all standard and non-standard items in the final bridge plan submittal. The bridge unit cost data is required to complete VDOT's annual Bridge Construction Unit Cost Report which is required by FHWA. This data shall be submitted to VDOT within 90 days of the VDOT's approval of the construction plan submittal.

2.3.9 Safety and Acceptance Inspection for the Proposed Bridge

Acceptance of a bridge structure will require the following two independent inspections by VDOT, and in accordance with IIM-S&B-27.6 Bridge Safety Inspections.

A satisfactory safety/inventory inspection by VDOT is required prior to opening the structure or portion of the structure to public traffic. This safety/inventory inspection by VDOT will serve as the initial inspection of the structure. Data gathered will include location, date completed, alignment, description, horizontal/vertical clearances, structure element description and condition data, and traffic safety features.

A satisfactory final construction inspection by VDOT is required prior to Final Acceptance of the structure.

To facilitate inspection of the structure by VDOT, the Design-Builder shall ensure that all structural elements are accessible and shall provide adequate resources including:

- Man-lifts, bucket trucks, under bridge inspection vehicles, boats, or other equipment necessary to inspect the structure as well as properly trained staff of sufficient composition to support the inspections.
- Plans, procedures, personnel, and equipment to implement traffic control measures.

The Design-Builder shall provide a minimum of thirty (30) days notice to VDOT whenever it requires VDOT to undertake an inspection. The Design-Builder's notice to VDOT shall include as-built drawings, traffic control procedures, a description of the items to be inspected and an anticipated schedule for the inspections, submitted in accordance with the requirements contained in the Shop Drawings Section.

Unless otherwise approved by VDOT, the structure shall be substantially complete (i.e. roadway, and slopes on the approaches and underneath the structure are already in place) before the final construction inspection will be performed.

2.4 Environmental

2.4.1 Environmental Document

In accordance with the requirements of the National Environmental Policy Act (“NEPA”), and in cooperation with FHWA, VDOT completed a Programmatic Categorical Exclusion (“PCE”) for the Project on November 19, 2009. A Preliminary Document Re-evaluation for Plans Specifications and Estimates (“PS&E”) Authorization dated March 1, 2012 and a preliminary Environmental Certification/Commitments Checklist dated May 3, 2012 have also been completed by VDOT. These documents are included in the RFP Information Package. The reevaluations and certification are initial documents based on RFP plans and currently available information. VDOT shall complete a final Document Re-evaluation for RW Authorization prior to RW authorization and a final Document Re-evaluation for PS&E Authorization and final Environmental Certification/Commitments Checklist prior to the VDOT Project Manager releasing each work plan of the Project for construction.

The Design-Builder shall carry out the environmental commitments during right of way acquisition, design and construction, as applicable, as identified in the PCE, the Document Re-evaluations for RW Authorization and PS&E Authorization, and the Environmental Certification/Commitments Checklist. All commitment compliance shall be supported by appropriate documentation, to be provided by the Design-Builder to the VDOT Project Manager.

Any changes in the scope or footprint of the established basic Project concept, proposed by the Offeror and acceptable to VDOT may require additional environmental technical studies and analysis to be performed by the Design-Builder. The Design-Builder will be responsible for notifying VDOT of plan revisions, scope changes, and providing any necessary studies and other necessary information to support VDOT’s completion and reevaluation of the NEPA document. VDOT will be responsible for the coordination of any revised environmental documentation with FHWA for concurrence of VDOT’s conclusions. The Design-Builder shall then carry out any additional environmental commitments that result from such coordination at its sole expense and no additional cost to the Project.

The Design-Builder is solely responsible for any costs or schedule delays due to permit acquisition, modifications, and NEPA document re-evaluations associated with Design-Builder’s design changes and no time extensions will be granted.

2.4.2 Cultural Resources

VDOT completed coordination with the Virginia State Historic Preservation Officer (“VA SHPO”) in compliance with Section 106 of the National Historic Preservation Act. On September 30, 2009, the SHPO determined the project would have No ~~Adverse~~ Effect on eligible historic properties in the Area of Potential Effect.

The Design-Builder shall avoid any project-related activities on historic properties, including but not limited to staging, borrow/disposal, and any temporary or permanent easements. The Design-Builder shall submit written notification to the VDOT Project Manager if the design plans or construction methods necessitate any activity on historic properties. VDOT will determine whether the VA SHPO must be consulted.

If cultural resource technical studies of compensatory mitigation areas are needed to obtain the water quality permits necessary to construct the project, the Design-Builder shall conduct the necessary studies, coordinate with the SHPO, and implement the appropriate treatment actions resulting from the coordination. The Design-Builder will provide the VDOT Project Manager with a copy of the technical reports and correspondence related to compliance with this technical requirement

2.4.3 Water Quality Permits and Compensatory Mitigation

VDOT completed a Permit Determination (dated April March 30, 2012) concluding that water quality permits are required for the project based on the preliminary plans. The Design-Builder will be responsible for, but not limited to, the following water quality permitting activities: determination, coordination, application, acquisition, reporting and administration of required state and federal water quality permits and permit modifications. VDOT's preliminary permit determination for the Project is included in the RFP Information Package.

The Design-Builder shall determine the applicability of water quality permits for the project (to include utilities to be relocated by the Design-Builder for the Project). Should it be determined that Water Quality Permits are required, the Design-Builder shall conduct the preliminary field assessment including, but not limited to, wetland delineation, stream assessment, and permit impact sketches. The Design-Builder shall also determine the required sequencing methodology to limit project impacts to wetland systems. The Design-Builder shall utilize this information to obtain required permits.

The Design-Builder will obtain all necessary environmental clearances, permits, and approvals required to accomplish the work as noted in Part 4 (General Conditions of Contract), Article 2.6. The Design-Builder will be responsible for performing necessary design and fieldwork to support the acquisition of necessary water quality permits independently and directly from the regulatory agencies.

If the Design-Builder determines water quality permits are not required, the Design-Builder shall notify the VDOT Project Manager in writing, so that VDOT can authorize the Design-Builder to execute the work. Any deviations that the Design-Builder makes to the Project footprint and/or scope may render the permit determination invalid and will require additional consideration.

If the Design-Builder determines that wetlands and/or stream mitigation is required to secure the permit authorization, the Design-Builder will provide the required compensatory mitigation. The Offeror shall account for all costs associated with water quality permit acquisition, as well as compensatory mitigation.

The Design-Builder shall note that avoidance, minimization, and mitigation measures associated with permit acquisition will require close coordination between the Design-Builder and VDOT. If permit issuance is delayed or permits are denied, the Design-Builder will be responsible for any schedule delays and/or associated costs.

The Design-Builder shall ensure that Project schedules accommodate any Special Provisions, Time of Year Restrictions (“TOYR”), and the duration of permit acquisition from the regulatory agencies. The Design-Builder shall be responsible for adhering to permit conditions and Special Provisions, as identified in the permit authorizations including but not limited to TOYR, avoidance and minimization recommendations, restoration of temporary impact areas, and countersinking culverts. The Design-Builder shall be responsible for compliance with pre-construction, construction related permit conditions, as well as post-construction monitoring if required by regulatory agencies.

The Design-Builder shall not proceed with work covered by the water quality permits until the VDOT Project Manager releases the work in writing. The VDOT Project Manager may release a portion or all of such work not in jurisdictional areas, but may order a suspension of the same work after its release. The Design-Builder shall not be allowed to begin work that pre-determines the work required in the jurisdictional areas until the permits are secured.

After receiving the VDOT Project Manager’s release of the work, the Design-Builder shall notify VDOT and the regulatory permitting agencies in writing 14 days prior to beginning work in the jurisdictional areas covered by the water quality permits.

The Design-Builder shall allow environmental compliance inspections by VDOT, and/or regulatory agencies as required by permits and/or to facilitate any interim compliance reviews/assessments.

At the conclusion of the Project, the Design-Builder shall notify VDOT and the regulatory permitting agencies in writing of the completion of the work in the jurisdictional areas covered by the water quality permits. At the completion of the Project, the Design-Builder is required to transfer any VMRC permit back to VDOT.

The Design-Builder shall carry out any additional permit conditions/commitments that result from change in footprint and/or scope (assuming it is approved by VDOT) at its sole expense and no additional cost to the Project; additionally the Design-Builder will be responsible for any schedule delays and associated costs.

All permitted construction activities shall be identified as hold points in the Design-Builder’s CPM Schedule.

2.4.4 Threatened and Endangered Species

VDOT has performed preliminary reviews to determine potential effects of the Project on threatened and endangered (T&E) species. The reviews included VDOT GIS Integrator searches for the potential presence of T&E species using a minimum search radius of two miles along the project corridor; and the reviews also included coordination with appropriate state and federal agencies. A search on April 30, 2012, in the VDOT GIS Integrator reconfirmed that there are no newly identified T&E species located in the project area. The Offeror shall be advised that new and updated T&E information is continually added to agency databases. The Design-Builder will be responsible for any subsequent coordination to obtain updated information, requirements,

and clearances from environmental regulatory agencies that provide threatened and endangered species oversight. This additional T&E species coordination is also a standard component of the water quality permit acquisition process and may result in permit conditions for which the Design-Builder will be responsible. The Design-Builder is responsible for ensuring that all T&E species are correctly identified and impacts assessed, noting that more or less resources may be present than initially identified. Avoidance and minimization shall be implemented to the greatest extent possible. The Design-Builder shall provide to the VDOT Project Manager copies of all documentation and correspondence with regulatory agencies.

2.4.5 Hazardous Materials

VDOT performed environmental site reviews to determine the potential for hazardous materials and/or contamination within the Project area. The VDOT Hazardous Materials Summary Report, dated January 21, 2011 is contained in the RFP Information Package.

Two petroleum release sites and facilities are located within the project limits. The Design-Builder shall reference the preexisting hazardous materials identified in the VDOT Hazardous Materials Summary Report and accordingly meet all requirements of the Special Provision for Management of Petroleum Contaminated Soil. The quantities provided in the Special Provision are for informational purposes only; actual quantities will be based on the Design-Builder's final design. Any hazardous materials encountered beyond those identified in the Hazardous Materials Summary Report will be addressed in accordance with Part 4, Article 4. The Design-Builder shall be responsible for the proper containment of any hazardous materials that are brought onto the Project by the Design-Builder and shall implement good housekeeping so that the generation of hazardous waste does not occur.

All solid waste, hazardous waste, and hazardous materials shall be managed in accordance with all applicable federal, state, and local environmental regulations.

Unless a structure has been classified, the Design-Builder shall assume Type B structures are present in the project rights of way. Disturbance of areas coated with a hazardous material shall require environmental and worker health & safety protection plans. The Design-Builder shall conform to the Special Provision for Dismantling and Removing Existing Structures or Removing Portions of Existing Structures included in the RFP Information Package.

The Design-Builder shall have asbestos inspections performed by an independent Asbestos Inspector licensed by the Virginia Department of Professional and Occupational Regulation ("DPOR") for all structures (including bridges) owned and/or to be acquired for or demolished within the Project rights of way. Asbestos abatement shall be performed for all structures found to contain regulated asbestos materials ("ACM") prior to demolition. The Design-Builder shall conform to the Special Provision for Asbestos Removal and NESHAP-Related Demolition Requirements for Structures on Design-Build Projects, as well as the VDOT's Asbestos Inspection Procedures and Asbestos Monitoring Procedures. If a structure is found to contain non-friable (non-regulated) asbestos containing materials, the Design-Builder shall conform to the Special Provision for Demolition of Structures Containing Non-Friable Asbestos Containing Materials. All bridge structures shall be inspected according to the Special

Provision for Inspection of Bridge Structures for ACM. Where ACM are identified, the Design-Builder shall provide for abatement in accordance with VDOT Special Provision for Removal of Asbestos from Bridge Structures and with all Federal and State regulations. Copies of all inspection results shall be provided to VDOT.

Asbestos abatements shall not be performed by an asbestos contractor who has an employee/employer relationship with, or financial interest in, the laboratory utilized for asbestos sample analysis nor shall the asbestos contractor have an employee/employer relationship with, or financial interest in, the asbestos inspector and project designer working on the project. The Design-Builder shall provide monitoring services associated with asbestos abatement and demolition activities.

For asbestos waste and other non-hazardous waste, the Design-Builder shall have the signatory responsibility for the waste shipping manifest(s) and/or bill(s) of lading.

For hazardous waste the Design-Builder shall be considered the co-generator and shall be responsible for preparing the hazardous waste shipping manifest(s) for the VDOT representative's signature and as otherwise consistent with the signatory requirement under Section 411 of the VDOT Road and Bridge Specifications.

The Design-Builder shall make all appropriate notifications as required by the Special Provision for Removal of Asbestos from Bridge Structures and the Special Provision Copied Note regarding demolition notifications for structures not requiring asbestos removal and all Federal and State regulations.

The following will be paid, if and when necessary, under a Work Order in accordance with Article 9 of Part 4 (General Conditions of Contract): abatement and/or removal of hazardous material(s) discovered to exist within the Project limits.

In the event of spills or releases of petroleum products and other hazardous liquids or solid materials, the Design-Builder shall take immediate action to contain and eliminate the spill release, including the deployment of environmental protection measures to prevent the migration of the spill into the waters of the United States and of worker exposure protection measures. The Design-Builder shall also notify the VDOT Project Manager immediately of all instances involving the spill, discharge, dumping or any other releases or discovery of hazardous materials into the environment and shall provide all required notifications and response actions.

All solid waste, hazardous waste, and hazardous materials shall be managed in accordance with all applicable federal, state, and local environmental regulations. The Design-Builder shall be responsible for the development of a Spill Prevention, Control, and Countermeasure Plan as required by regulation and for submission of any required plan to the VDOT Project Manager prior to start of construction. The Design-Builder shall notify the VDOT project manager immediately of all instances involving the spill, discharge, dumping or any other releases or discovery of hazardous materials into the environment and shall provide all required notifications and response actions. The Design-Builder shall not acquire property until the

Hazmat Phase 1 Assessment and any mitigation required is complete. This shall represent a hold point in the Design Builder's CPM schedule.

2.4.6 Air Quality

The project has been assessed for potential air quality impacts and conformity with applicable air quality regulations and requirements. The Air Quality Analysis report (dated February 2012) is provided in the RFP Information Package.

The assessment determined that the project would meet all applicable air quality requirements of NEPA and the federal transportation conformity regulation. This project is located within a moderate ozone nonattainment area, a fine particulate matter (PM_{2.5}) nonattainment area, and a volatile organic compounds (VOC) and nitrogen oxides (NO_x) emission control area. As such, all reasonable precautions should be taken to limit the emissions of VOC, NO_x, and particulate matter. The Air Quality Analysis describes precautionary requirements and Department of Environmental Quality air pollution regulations applicable to the project. Also, the Design-Builder will be required to adhere to the limitations outlined in the Special Provision for Volatile Organic Compound Emissions Control Areas.

2.4.7 Environmental Compliance

The Design-Builder is responsible for compliance with all applicable state and federal environmental laws, regulations, and permits. If, at any time, the Design-Builder is not in compliance with all applicable environmental laws, regulations, Executive Orders, commitments, etc., the VDOT Project Manager has the authority to suspend work, in whole or in part, until such time as the deficiencies or non-compliant items have been corrected. Should any non-compliant item(s) be identified during construction, immediate and continuous corrective action shall be taken by the Design-Builder to bring the item(s) back into compliance.

The Design-Builder shall be responsible for any schedule delays and associated costs as a result of any delays and/or shut downs associated with non-compliance. Any monetary fines associated with violations and/or any environmental restoration activities required to resolve violations shall be the responsibility of the Design-Builder.

The Design-Builder shall carry out environmental commitments during design and construction, as applicable, as identified in the PCE, the Document Reevaluations for RW Authorization and PS&E Authorization, and the Environmental Certification/Commitments Checklist. All commitment compliance shall be supported by appropriate documentation, to be provided by the Design-Builder to the VDOT Project Manager.

The Design-Builder shall be responsible for compliance with pre-construction and construction-related environmental commitments and permit conditions. The Design-Builder shall assume all obligations and costs incurred by complying with the terms and conditions of the permits and certifications. Any fines associated with environmental permit or regulatory violations shall be the responsibility of the Design-Builder.

2.5 Survey

Preliminary field survey and utility data has been obtained, including, but not limited to the following:

- Horizontal control
- Vertical control
- Notification of property owners*
- Field data
- Topography
- Property data
- Utilities
- Levels
- Digital Terrain Model (DTM)
- Bridge Site Plan

*The Virginia Code 33.1-94 requires that Notice of Intent letter (RUMS Forms I1, I2, I3, and I4) “shall be sent to the owner at the address recorded in the tax records, or delivered by guaranteed overnight courier or otherwise delivered to the owner in person with proof of delivery **not less than 15 days prior to** the first date of the proposed entry. Notice of intent to enter shall be deemed made on the earlier of the date of mailing, if mailed, or on the date delivered.” The notice shall include the anticipated date/dates such entry is proposed to be made and the purpose of such entry. Advance notification of property owners is required for all data collection efforts related to the development of highway plans. Copies of the notification letters and address labels shall be provided to the VDOT Project Manager for forwarding to the District Survey Manager as soon as they become available.

The Design-Builder shall be advised the survey provided in the RFP Information Package is not represented to be complete for purposes of designing the Project, and that Design-Builder’s scope of work includes performing all additional surveying that is necessary to supplement the above-referenced survey as required for design purposes.

The Design-Builder will be responsible for obtaining any additional survey data, including all right of entry and land use permits, locating and/or designating underground utilities, DTM, utility test holes and obtaining other related data necessary for design, right of way acquisition and construction of the project. Additionally, the Design-Builder will be responsible for any update (property owner changes, subdivisions, etc.) that may occur; updates shall be reflected on the plans ~~and plats~~ in order to acquire right-of-way and complete the final design. Any additional Survey changes will be verified and certified and submitted in final documentation.

The Design-Builder will be responsible to reset or relocate any survey control damaged, destroyed or located within the foot print of the final design construction limits. The control will

be reestablished by a land surveyor licensed in the Commonwealth of Virginia with LD-200 information and supporting computations submitted to the Project Manager.

The Design-Builder shall be responsible for providing and setting all Right-of-Way monuments according to the survey manual. RM-2 type monuments will be required. The Design-Builder shall include monumentation on the final as-built plan in accordance with the Department's Survey Manual.

2.6 Geotechnical Work

VDOT has completed a preliminary geotechnical subsurface investigation for this Project. The results of the investigation are presented in the Geotechnical Engineering Data Report prepared by VDOT dated June 21, 2012, which is included in the RFP Information Package.

The data included in this RFP is being provided for Offeror's information in accordance with Section 102.04 of Part 5. The Design-Builder shall perform a design-level geotechnical investigation to validate and augment the geotechnical information included in this RFP. The geotechnical engineering investigation performed by the Design-Builder shall meet or exceed Chapter 3 of the VDOT Material Division's Manual of Instructions ("MOI"); the current AASHTO LRFD *Bridge Design Specifications*, 6th Edition, 2012; and VDOT Modifications and Section 700.04(c) of the Road and Bridge Specifications.

The Design-Builder shall collect appropriate data for geotechnical evaluation of pavements, embankments, soil and rock cuts, bridge structures, storm water management facilities, minor structures including drainage pipe, and any other earth-supported or earth-retaining structures or elements of highway design and construction required for this project. The Design-Builder will be responsible for obtaining all necessary permits and utility clearances as required by VDOT, the Commonwealth of Virginia, or any other jurisdictional body or owner prior to accessing public or private property for the purpose of conducting geotechnical field work. The Design-Builder shall complete laboratory tests in accordance with pertinent ASTM or AASHTO standards and analyze the data to provide design and construction requirements. Soils, rock, aggregate, concrete and other materials tests shall be performed by a laboratory accredited through the AASHTO Accreditation Program ("AMRL" and "CCRL") for each test it conducts for the Project, unless otherwise approved by VDOT.

The Design-Builder shall provide VDOT with all records of subsurface explorations and describe the soils encountered with their depth limits in accordance with the requirements outlined in Chapter 3 of the VDOT Materials Division MOI. Upon request, VDOT will provide its gINT and ACCESS file structures for the Geotechnical Database Management System ("GDBMS") to the Design-Builder for the borings contained in Geotechnical Engineering Data Report.

Unless otherwise addressed by AASHTO LRFD, the Design-Builder shall incorporate reliability assessments in conjunction with standard analysis methods in accordance with Chapter 3 of the VDOT Materials Division MOI. An acceptable method for evaluation of reliability is

given by Duncan, J.M. (April 2000) *Factors of Safety and Reliability in Geotechnical Engineering*, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, Discussions and Closure, August 2001. The Design-Builder may propose to identify specific, non-critical features, and alternative methods for evaluating variability of subsurface conditions, reliability and minimum factors of safety, prior to submission of its design calculations and drawings. VDOT may, in its sole discretion, accept or reject such proposed methods.

The Design-Builder shall submit to VDOT for its review all geotechnical design and construction memoranda and/or reports that summarize pertinent subsurface investigations, tests, and geotechnical engineering evaluations and recommendations utilized in support of their design/construction documents. This submittal shall be made at least 90 days in advance of the submittal of any final design/construction documents that are dependent upon the geotechnical evaluations and recommendations. Technical specifications for construction methods that are not adequately addressed in the standard specifications shall be provided by the Design-Builder as part of the final design/construction documentation. Prior to submittal of any final design/construction documentation, the Design-Builder shall review the final design/construction document to assure that it appropriately incorporated the geotechnical components and shall submit evidence of this review to accompany the final design/construction documentation. The Design-Builder shall reference the drawings that incorporate the pertinent results. The Design-Builder's Quality Assurance and Quality Control ("QA/QC") Plan shall document how each specific geotechnical recommendation or requirement will be addressed in the final design/construction documentation. The results of the geotechnical investigation and laboratory results shall support design and construction efforts to meet the requirements outlined in this Section.

2.6.1 Minimum Pavement Sections

Minimum pavement sections are being provided for Proposal preparation purposes only. If the Design-Builder confirms that the minimum pavement sections below are inadequate for actual design/construction conditions, it shall notify VDOT during the Scope Validation Period of the necessary changes and proposed price adjustments, if any. Acceptable changes are limited to increasing the thickness of the base or subbase layers specified below. Any changes to the minimum pavement sections noted above shall be approved by VDOT. The Design-Builder shall be responsible for the final design and construction of the pavements for the Project in accordance with the Contract Documents.

The Design-Builder shall prepare and incorporate the validated pavement sections into the plans, typical sections, profiles and cross-sections. Pavement sections shall be validated by analysis of projected traffic, analysis of soil conditions and pavement design calculations in accordance with the applicable manuals noted in Section 2.1. This includes drainage and subdrainage requirements to ensure positive drainage both within the pavement structure and on the pavement surface. The pavement sections for the roadway and shared use path segments within this Project are listed below.

2.6.1.1 Route 29 Construction, Widening and Overlay

In areas of widening, existing curb and gutter, existing shoulders and 1-foot of existing mainline pavement structure shall be fully removed to the subgrade before placing the new pavement section for widening. Pavement layers for widening shall be placed such that the top of the Intermediate Asphalt Course matches grade and cross slope with the milled surface of the existing pavement. The final Surface Asphalt Course shall be placed uniformly over the widened and milled pavement such that the joint between the new widened pavement structure and the existing pavement structure is concealed:

Route 29 Mainline and Shoulders - Areas of New/Widening Pavement:

Surface: 1.5" Asphalt Concrete, Type SM-9.5D (estimated at 175 lbs/sq.yd.)
Intermediate: 2" Asphalt Concrete, Type IM-19.0A (estimated at 236 lbs/sq. yd.)
Base: 10" Asphalt Concrete, Type BM-25.0A
Subbase: 7" Aggregate Base Material, Type I, Size No. 21B. The subbase should be extended to daylight or 1 ft. behind the curb and gutter and connected to a standard UD-4 edgedrain, in accordance with UD-4 standard details.

The widening section above should be constructed to match the existing pavement surface *prior to building up the adjacent pavement* to the proposed final grades.

Route 29 Mainline and Shoulders - Overlay of Existing Pavement:

Wherever the existing pavement will be overlaid, it should be built up with the following section:

Surface – 1.5" Asphalt Concrete, Type SM-9.5D (estimated at 175 lbs/sq.yd.)
Intermediate – 2" Asphalt Concrete, Type IM-19.0A (estimated at 236 lbs/sq.yd.)
Asphalt Concrete Build-Up – Variable Depth Asphalt Concrete, Type BM-25.0A.

The existing pavement surface should be milled a minimum of 2" prior to installation of the variable depth asphalt concrete build-up. Additionally, where the proposed grade will be less than 3.5" above the existing pavement surface, the existing pavement surface should be milled sufficiently to provide enough depth for the installation of the surface and intermediate courses noted above.

Shared-Use Path

Surface: 2" Asphalt Concrete, Type SM-9.5A (estimated at 235 lbs/sq.yd.)
Subbase: 6" Aggregate Base Material, Type I, Size No. 21B, extended a minimum of 6" beyond the edges of asphalt pavement.

Hydraulic Cement Concrete Sidewalks

Surface: 4" Class A3 Hydraulic Cement Concrete
Subbase: 4" Aggregate Base Material Type I, Size No. 21A, extended 6" on either side of the surface material.

Temporary Pavement (Maintenance of Traffic)

The following design is based upon a 1-year life expectancy:

Surface – 2" Asphalt Concrete, Type SM-9.5D (estimated at 235 lbs/sq.yd.)

Base – 6" Asphalt Concrete, Type BM-25.0A

Subbase – 6" Aggregate Base Material, Type I, Size 21B, extended to daylight, if possible.

The minimum pavement sections require that proper grading be maintained to direct surface water away from paved areas and to provide for efficient runoff from surrounding areas.

Any utility excavations or excavations for storm drains within pavement areas shall be backfilled with compacted structural fill in accordance with applicable sections of the Road and Bridge Specifications and applicable Special Provisions.

VDOT guidelines specify that edgedrains/underdrains be provided for all pavements with daily traffic volumes in excess of 1,000 vehicles per day. Therefore, standard UD-4 edgedrains will be required for all pavements on this project. Modified UD-1 underdrain shall be provided in lieu of standard UD-4 edgedrain for pavement sub-drainage in areas of high ground water, springs or cuts in excess of 15 feet; the modification consists of wrapping the aggregate with geotextile drainage fabric. Standard Combination Underdrain (CD-1) shall be provided at the lower end of cuts. Standard Combination Underdrain (CD-2) shall be provided at grade sags, bridge approaches, and at the lower end of undercut areas.

2.6.2 Geotechnical Requirements

The Design-Builder shall analyze methods to minimize differential settlement of the approach to the bridge (bump at the bridge) for new construction and provide construction recommendations to address soil-structure interaction to accommodate the unique construction methods applied to this Project. All geotechnical work shall be completed to satisfy baseline and post-construction contract performance requirements.

Filling over the existing wetlands will be particularly challenging due to the depth of soft soils encountered (up to 6 feet). Also, due to the presence of very soft soils beneath the existing embankment and in the proposed widening areas, there is a significant potential for settlement of the existing utilities due to the future embankment loading. It will be the design-builder's responsibility to ensure that the stability and settlements of the embankments have been designed to the minimum tolerances specified below. The impact of settlement on the overall construction of the bridge approaches must be determined during design and an appropriate monitoring system shall be installed during construction to verify predicted performance.

Design and construct pavements, subgrades, and embankments to meet the following post-construction settlement tolerances:

- 1) Total vertical settlement less than two inches over the initial 20-years, and less than one inch over the initial 20-years within 100 feet of bridge abutments;
- 2) Settlement that will not impede positive drainage of the pavement surface, especially within the travel lanes nor subject the roadway to flooding;
- 3) Settlement that does not result in damage to adjacent or underlying structures, including utilities;
- 4) For pavement sections, bridge decks, and tie-ins to the Project, grade tolerances shall be measured with a 10-foot straightedge. The variation of the surface from the testing edge of the straightedge between any two contacts with the surface shall not be more than plus (+) 0.25-inch to minus (-) 0.125-inch at structures and (+/-) 0.25-inch at project tie-ins; and
- 5) Humps, depressions and irregularities exceeding the specified tolerance will be subject to correction by the Design-Builder. The Design-Builder shall notify the Quality Assurance Manager (“QAM”) and VDOT for any non-conformance items.

The Design-Builder shall consider settlement of design foundations (bridges, retaining walls, sound barriers, and other structures) based upon the criteria defined in Attachment 2.3 entitled Additional Foundation Criteria.

In summary, the Additional Substructure and Foundation Criteria attachment outlines two options for managing settlement of structures; a) limit total settlement to 0.5 inch and subsequently limit the need for a refined analysis of the superstructure and substructure, or b) allow the Design-Builder to design the structure for their estimates of elastic, consolidation and secondary settlement (total settlement) and subsequently communicate the total and differential settlement in the General Notes. In either case, a General Note shall be placed on the plans to communicate the amount of settlement evaluated and accommodated by the structure. Specific General Note language, along with Notes to Designer are included in the Attachment 2.3.

In either case, the total vertical and/or differential settlements of the proposed structures shall not exceed the performance tolerance noted above for pavements and of the bridge decking. In addition, angular distortion between adjacent foundations greater than 0.008 radians in simple span and 0.004 radians in continuous span structures is not permitted unless first approved by VDOT.

Embankments and certain aspects of retaining wall design are not addressed by LRFD. Embankments and cut slopes should be designed in accordance with Section 305 of the VDOT Materials MOI. All retaining walls shall be designed in accordance with applicable VDOT and AASHTO requirements.

2.6.3 Pipe Installation Methods

Culverts or utility pipes shall be installed by either conventional methods in accordance with Section 302.03 of VDOT’s Road and Bridge Specifications, or Jack and Bore and/or by Micro-tunneling in accordance with the applicable Special Provisions. Trenchless technology other than these methods of installation is not permitted unless otherwise approved by VDOT. The Design-Builder’s Design Engineer shall choose which of the methods of installation is best

suited for the ground and site conditions where the work is to be performed and that will meet the design requirements of the proposed culverts or utility pipes. The Design Engineer shall be responsible to establish both the vertical and horizontal tolerances in support of the design. Such tolerances shall be noted on the construction plans. The design tolerance may be more stringent than what is called for in the both the Jack and Bore and Micro-Tunneling Special Provisions; however, under no circumstances shall the performance requirements and design tolerances used in design of either culverts or utility pipes exceed those specified in Road and Bridge Specifications and the applicable Special Provisions unless first approved by VDOT. Performance requirements and tolerance stipulated in the Special Provision for Micro-Tunneling shall also apply to conventional tunneling methods.

2.7 Hydraulics

2.7.1 General

The Design-Builder shall provide and/or perform all investigations, evaluations, analysis, coordination, documentation, and design required to meet all Hydrologic and Hydraulic, Drainage, Stormwater Management, Erosion and Sedimentation Control, Stormwater Pollution Prevention, and Virginia Storm Water Management Program permitting requirements of the standards and reference documents listed in Section 2.1.

2.7.2 Drainage

The drainage design work shall include the design and construction of culverts, open channels, storm sewer systems, underdrains, bridge drainage assemblies and structures, adequate outfall analysis, stormwater management facilities, and erosion and sediment control measures in compliance with the standards and reference documents listed previously in Section 2.1 and the VDOT Erosion and Sediment Control & Stormwater Management Programs. The Design-Builder shall provide VDOT two (2) paper and two (2) electronic copies on CD of the final drainage report incorporating all drainage calculations including pre and post development discharges, capacities, and supporting data such as drainage areas (with maps), ground cover calculations, etc. in accordance with the documentation requirements as outlined in the VDOT Drainage Manual.

The hydraulic opening of the bridge shall be designed such that there is no increase in the level of the 100 year FEMA Floodplain elevation. The 25 yr design storm will be used for complying with the requirements of Chapters 8 and 12 of the VDOT Drainage Manual.

As stated in Section 2.5, VDOT has completed a preliminary field survey. It is the responsibility of the Design-Builder to obtain any additional survey that is necessary to accommodate final design, including, but not limited to, survey of modified or new drainage structures/pipes not captured in the VDOT field survey and survey necessary to delineate drainage areas.

All existing drainage pipes and culverts located within the project limits are unserviceable and are to be plugged and abandoned in accordance with VDOT Road and Bridge

Standard PP-1, removed, or replaced with adequate structures designed and constructed in support of the Design-Builder's final drainage design. The Design-Builder shall note that no existing pipes or culverts located within the project limits have been surveyed for structural and/or functional deficiencies. Any use of an existing pipe or culvert requires the explicit written approval of VDOT for that specific pipe or culvert. If the Design-Builder proposes to use an existing pipe or culvert for its final drainage design, it shall assess the serviceability of the structure by performing a visual/video inspection of the existing pipe or culvert utilizing the assessment criteria for Post Installation Inspections presented in VDOT Supplemental Specification 30202. The Design-Builder will provide this information to VDOT for review and approval. If VDOT determines, in its sole discretion, that the pipe or culvert is repairable, then the Design-Builder shall rehabilitate it in accordance with VDOT's guidelines including, but not limited to those methods outlined in the latest version of IIM-LD-244 and Special Provision SU302000A - Pipe Culvert Replacement or Rehabilitation.

Underdrain outfall locations are not shown in the plan set included and it shall be the responsibility of the Design-Builder to develop the underdrain design including adequate outfall locations. The Design-Builder may, at its discretion, utilize access structures (i.e. manholes, cleanouts, etc.) in lieu of EW-12's in order to outfall an underdrain according to the guidelines set forth in the 2008 VDOT Road and Bridge Standards and the VDOT Drainage Manual while maintaining the ability for the underdrain to be accessed in the future for maintenance purposes.

2.7.3 Post Construction Stormwater Management Plan and Erosion and Sediment Control Plan

An Erosion and Sediment Control ("ESC") Plan and Narrative, Stormwater Pollution Prevention Plan ("SWPPP"), and a post construction Stormwater Management ("SWM") Plan shall be prepared and implemented by the Design-Builder in compliance with applicable requirements of the standards and reference documents listed in Section 2.1 including the Virginia Erosion and Sediment Control Law and Regulations and the Virginia Stormwater Management Program (VSMP) Law and Regulations. The Design-Builder shall certify that the Erosion and Sediment Control Plans and Narrative and post construction Stormwater Management Plan have been designed and reviewed in accordance with Virginia Erosion and Sediment Control and Stormwater Management Regulations, VDOT's Approved ESC and SWM Standards and Specifications, and VDOT policies and procedures, including applicable I&IM. Before implementing any ESC or post construction SWM measures not included in VDOT's approved ESC and SWM Standards and Specifications, a variance or exception respectively must be requested through the District Hydraulic Engineer in accordance with the latest versions of IIM-LD-11 and IIM-LD-195.

It shall be the responsibility of the Design-Builder to have a qualified person within their team structure, other than the ESC and post construction SWM Plan designer, who is authorized by the Department of Conservation and Recreation (DCR) to perform plan reviews, independently review and certify that the ESC Plans and Narrative and post construction SWM Plan for the Project are in accordance with VDOT's Approved ESC and SWM Standards and Specifications. The Design-Builder shall complete and submit the ESC and SWM Plan Certification form (LD-445C) to the VDOT Project Manager. The Design-Builder shall provide

VDOT two (2) paper and two (2) electronic copies each on CD of the final ESC Plan and Narrative, SWPPP and post construction SWM Plan incorporating all calculations, analysis, documentation and evaluations required. The ESC Narrative shall specifically include calculations (with supporting data) documenting that the design meets the adequate outfall requirements of the VSMP Regulations for each location where stormwater is discharged from the Project.

The land-disturbing activity is greater than one acre and coverage under the VSMP General Construction Permit For The Discharges From Construction Activities (VSMP Construction Permit) is required. The Design-Builder shall coordinate and submit the required permit coverage application information to the VDOT Project Manager. The Design-Builder shall complete the applicable sections of the VSMP Construction Permit Registration form (LD-445), VSMP Construction Permit Contact Information (LD-445A) and VSMP Permit Fee Registration form (LD-445B). These forms along with the completed ESC and SWM Plan Certification form (LD-445C) shall be submitted to the VDOT Project Manager. The VDOT Project Manager will review the submitted information and, if complete and acceptable, process a request for coverage under the VSMP Construction Permit in accordance with VDOT's guidelines as outlined in the latest version of IIM-LD-242. If any information submitted by the Design-Builder is found to be incomplete and/or unacceptable, the assembly will be returned to the Design-Builder for corrective action and resubmission.

A working conceptual ESC and post construction SWM Plan and SWPPP for the entire Project must be submitted for review and approval with the initial application for permit coverage. This initial conceptual Plan submittal shall include the proposed total expected Land Disturbance Area and Land Development Area, including any off-site facilities, for the entire Project. Where the project will be constructed in segments, the Design-Builder shall submit a finalized ESC & SWM Plan, a post construction SWM Plan and a SWPPP, including the expected Land Disturbance Area for the proposed initial work segment in addition to the conceptual plan for the entire project. It is expected that the individual work segment submittals will be self-sustaining and not incur a deficit in post construction SWM design requirements requiring mitigation on future work segments. Subsequent work segment submittals shall include required modifications to the Land Disturbance Area value. However, these modifications, in total, shall not exceed the initially submitted Land Development Area value. The Design-Builder shall not proceed with the work to be covered by the permit until the VDOT Project Manager releases the work in writing. It is noted that permit coverage, and subsequent release of work can take up to 90 days from the time that the Design-Builder submits a request for coverage that includes all required information. This represents a hold point in the Design-Builder's CPM Schedule. The Design-Builder shall provide a completed SWPPP Certification form (LD-445E) before commencement of any land disturbing activity and shall complete and include the SWPPP General Information Sheets in the plan assembly per the latest version of IIM-246. The SWPPP Certification form (LD-445E) and SWPPP General Information Sheets shall be updated with each work segment submittal as necessary. The Design-Builder shall be responsible for compliance with construction-related permit conditions and shall assume all obligations and cost incurred by complying with the terms and conditions of the permit. Any fines associated with permit or regulatory violations shall be the responsibility of the Design-Builder. Upon completion of the regulated land disturbing activity (including final stabilization

of all disturbed areas), the Design-Builder shall provide as built Permanent Best Management Practice (BMP) information in Section VI of the SWPPP General Information Sheets for each post construction BMP placed into service on the Project, complete and sign the VSMP Construction Permit Termination Notice form (LD-445D) and submit both documents to the VDOT Project Manager for processing. The Design-Builder shall also have on-site during any land disturbing operations an individual or individuals holding a DCR Inspector Certification, a DCR Responsible Land Disturber (“RLD”) Certification and a VDOT Erosion and Sediment Control Contractor Certification (“ESCCC”) to ensure compliance with all DCR and VDOT erosion and sediment control plan implementation requirements.

2.7.4 Post Construction Stormwater Management Facilities

The Design-Builder shall be responsible for the design and construction of stormwater management (SWM) facilities as required for the Project in accordance with IIM-LD-195.7, and the other standards and reference documents listed in section 2.1 including the Virginia Stormwater Management Program Law and Regulations. The Design-Builder is to insure proper ingress and egress to any stormwater management facility and that any specific proprietary facilities have proper maintenance details included in the plans.

Preliminary calculations prepared for VDOT are presented in the Stormwater Management Report included in the RFP Information Package. These calculations indicate that a stormwater management facility is required for this Project. VDOT has identified a potential location for the post construction stormwater management facility as part of the plans included in the RFP Information Package. However, this location is preliminary and has not been fully evaluated to determine if the location is suitable, feasible or sufficient to address all of the stormwater management requirements of the Project. The Design-Builder, as part of their final design, shall evaluate the location, and if found acceptable, develop a final post construction stormwater management plan. If the location is found to be unacceptable, the Design-Builder must identify other acceptable location(s) to meet the post construction stormwater management requirements of the Project.

2.7.5 Other Drainage Requirements

All drainage facilities (existing and newly constructed) within the project area that are disturbed or extended as a part of the project shall be cleaned out by the Design-Builder, maintaining the original line and grade, hydraulic capacity or construction of the facility prior to the final acceptance of the Project.

2.7.6 Scour

- Bridge over Little Rocky Run

The following minimum required scour elevations for use in the design of foundations are being provided for proposal preparation purposes only:

Substructure Unit	100-year Event	500-year Event
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Pier 1	EL. 296	EL. 295
Pier 2	EL. 295	EL. 294

Changes to the location of the bridge foundations will require additional geotechnical investigation and may result in different scour elevations. The Design-Builder shall be required to validate the adequacy of these scour elevations and to notify the Department of its findings during the Scope Validation Period. Scour models and the design of scour countermeasures shall be performed in accordance with the procedures recognized as appropriate by the FHWA and the Department. Appropriate procedures include, but are not limited to, “Evaluating Scour at Bridges – HEC 18 (current version),” and “Bridge Scour and Stream Instability Countermeasures – HEC 23 (current version).” Other procedures can also be considered during the scour evaluation upon prior approval by the Department. The Department may, in its sole discretion, accept or reject such proposed methods.

If the Design-Builder determines that these depths are inadequate for actual design/construction purposes, it shall notify the Department during the Scope Validation Period of the necessary changes to the proposed foundation system(s) and proposed price adjustments, if any. All aspects related to changes in the scour elevations (including, but not limited to, shoring modifications, impacts to the maintenance of traffic, and utility conflicts) shall be included in the proposed price adjustment. All scour elevation changes must be approved by the Department. The Design-Builder will be responsible for the final design and construction of the foundations for this Project, including the final Hydrologic and Hydraulic Analysis and the final Scour Analysis, in accordance with the Contract Documents.

2.8 Traffic Control Devices

The Project shall include all Traffic Control Devices (TCDs), including temporary and permanent signage, guardrail, and pavement markings. All TCDs designed and installed under this project shall be in accordance with standards and references included in Section 2.1. The Signing and Pavement Marking Plans, Transportation Management Plan (“TMP”), and Temporary Traffic Control/ Public Information/ Traffic Operations Plans are required from the Design-Builder for final approval by VDOT and shall be included as a planned work package. The Design-Builder shall comply with the Special Provision for Personnel Requirements for Work Zone Traffic Control.

All existing traffic control devices within the Project limits shall be modified, upgraded, or replaced by the Design-Builder to meet current VDOT standards.

The Design-Builder shall install new detector loops at the intersection with Union Mill Rd as a result of the pavement overlay. These new detector loops shall be coordinated with the existing signals.

2.8.1 Signs

The Design-Builder shall be responsible for all required modifications to existing signs and sign structures and furnishing and installing all required new signs and sign structures (both

temporary and permanent). Any signs on adjacent roadways and other facilities that require relocation/replacement due to construction activities shall be the responsibility of the Design-Builder. The final lines of sight and sight distances must be considered in the placement of all Project signage.

An existing sign inventory shall be completed prior to site demolition in accordance with the VDOT Traffic Engineering Design Manual. This existing information shall be submitted at the same time as the first plan submittal for proposed signing.

Salvageable signs removed during construction shall be delivered to the VDOT NOVA District Office. All sign structures and non-salvageable signs removed during the construction of the Project shall be disposed of by the Design-Builder. Temporary relocation of signs may be necessary as part of this project and it is the responsibility of the Design-Builder to perform all required sign relocations. All temporary sign relocations should be coordinated with VDOT. Where appropriate, existing VDOT signage that is found to be in good condition shall be reused in close proximity to current sign locations. All signs located adjacent to Route 29 shall be either break-away or protected by guardrail.

2.8.1.1 Limits of Project Signing

The Design-Builder shall replace all existing ground mounted signs and install new signing within the Project limits. Any signing on adjacent roadways beyond the project limits that requires relocation, replacement, or modification due to the proposed design shall be the responsibility of the Design-Builder.

2.8.1.2 Signing Plan Sheet Requirements

The signing plans shall be prepared at a scale equal to the roadway plans, with a maximum allowable scale of one (1) inch = fifty (50) feet. The signing plans shall show the proposed sign message, MUTCD or Virginia Supplement sign designation (if applicable), size and location of all signs. The structure type shall also be noted on the plans. These plans shall also show the location and messages of all existing signs. All existing sign removals and replacements shall be shown on the signing plans. The plans shall also include the location and type of delineation devices (including pavement markings).

2.8.1.3 Design of Sign Panels and Locations

Proposed and replaced signage shall be of high intensity prismatic sheeting. The design capacity of the square tube steel posts shall be evaluated by the Design-Builder for the proposed sign panel(s). The Design-Builder is responsible for ensuring that square tube steel posts are sufficient to support all project signage. The Design-Builder shall coordinate all sign locations with all proposed landscaping, signal, utility, hydraulic, and all other roadside features to assure proper clearances and adequate sight distances. All signage and route marker assemblies installed as part of the Project along Route 29 shall be Standard size. The sizes shall adhere to the latest edition of the FHWA Standard Highway Signs Book, the Virginia Supplement to the MUTCD, and all applicable Traffic Engineering Division Numbered Memoranda.

The Design-Builder shall use Standard VDOT sign structures for new and relocated VDOT owned signs. For all non-standard signs the Design-Builder shall use GUIDSIGN software to design the sign panels. The Design-Builder shall utilize the MUTCD and Virginia Supplement to the MUTCD (including design requirements in the Standard Highway Signs and Markings Book and the Virginia Standard Highway Signs Book) to design all non-standard signs (those signs not having a MUTCD or VDOT standard sign designation). The Clearview font shall be utilized for all positive contrast guide signs in accordance with Traffic Engineering Memorandum TE-337.

2.8.2 Guardrail

The Design-Builder shall ensure that the clear zone within the Project limits is free from hazards and fixed objects. In the event that removal or relocation of hazard and fixed objects from the clear zone is not feasible, the Design-Builder shall design and install appropriate barrier system for protection in accordance with NCHRP 350 or AASHTO Manual for Assessing Safety Hardware, First Edition. The same clear zone requirement applies to existing conditions affected by this Project where guardrail upgrade will be required. Existing sub-standard guardrail within the Project Limits must be upgraded by the Design-Builder to meet current standards per I&M 220. This may require the upgrade of guardrail to the nearest logical termination point beyond the current Project limits.

2.8.3 Pavement Markings / Markers

The Design-Builder shall include all required pavement markings, markers and delineators. All pavement markings, markers and delineators shall conform to the requirements of the MUTCD, the 2011 Virginia Supplement to the 2009 MUTCD, and applicable special provisions. All pavement markings shall be in accordance with VDOT Traffic Engineering Design Manual, dated 2011. All permanent edge lines, centerlines and skip lines throughout the Project shall be Type B, Class VI Patterned performance tape. All permanent edge lines, centerlines and skip lines placed on concrete surfaces shall use Type B, Class VI Patterned preformed tape with contrast. All preformed arrows and messages shall be Type B, Class I Thermoplastic. Typical lane line widths shall adhere to VDOT Standards PM-1 thru PM-9 and shall be four (4) inches. Stop bars shall be staggered in accordance with VDOT Standard PM-4, and shall be oriented perpendicular to roadway centerlines. If there is insufficient contrast between hydraulic cement concrete pavements and white pavement markings, the use of Type B, Class VI contrast pavement markings consisting of white pavement markings with black non-reflective borders should be considered for lane lines.

All new lane markings, edge lines, and center lines shall be supplemented with snow-plowable raised pavement markers. All permanent snow-plowable raised pavement markers shall be installed in accordance with VDOT Standard PM-8 and/or PM-9. Damaged existing snow-plowable raised pavement markers within the project limits shall be replaced in accordance with VDOT Standard PM-8 and/or PM-9.

2.9 Transportation Management Plan (TMP)

The Design-Builder shall develop and incorporate a TMP in accordance with the requirements of L&D Memorandum IIM-241.5 (dated September 19, 2011). The TMP shall document how traffic will be managed during the construction of the Project. This Project is classified as a Type B Category IV in terms of the TMP. The Design-Builder shall coordinate all work in accordance with the TMP. Minimally, the TMP shall incorporate and address the following elements defined in Section 2.9:

2.9.1 Maintenance of Traffic

The Design-Builder's TMP shall include a Maintenance of Traffic Plan detailing all phases of work, proposed lane closures, maintenance of traffic through the work area and all construction accesses. The TMP shall be submitted for approval by VDOT at least thirty (30) days prior to the start of construction. This plan shall also address safe and efficient operation of adjacent public transportation facilities and State Highways. This plan shall reflect the noted Scope of Work and all applicable VDOT Standards and Specifications regarding time of work. All users must be addressed and accommodated in the TMP, including pedestrians, bicyclists, transit vehicles, and other motorists. The TMP shall also accommodate safe and efficient snow removal operations and ensure proper drainage during all phases of construction. Access must be maintained to all businesses, residential communities, and private entrances at all times. The phases in the Design-Builder's suggested sequence of construction that accompany an approved work package shall be followed unless the Design-Builder submits and secures VDOT approval for a sequence which will both expedite construction while lessening the effect of such construction upon the traveling public.

The staging of the project shall be implemented to maintain a minimum of two 11 ft lanes of traffic in each direction at all times. Under no circumstances will concurrent construction left and right of any lane of traffic be allowed, unless otherwise approved by the Department.

The Maintenance of Traffic Plans shall extend an appropriate distance beyond the construction tie-in locations to allow for the required length of shift per the current editions of the Virginia Work Area Protection Manual and the MUTCD. Any areas that are immediately adjacent to traffic, excavated below the existing pavement surface, within the clear zone, and not protected by positive barrier, at the conclusion of each work day shall be backfilled to form an approximate 6:1 wedge against the pavement surface for the safety and protection of vehicular traffic.

Construction signs and temporary pavement markings shall be installed, maintained, adjusted, and removed by the Design-Builder throughout the duration of the Project.

All entrances, intersections or pedestrian access points/routes that will be affected by the work zone or by the traffic control devices will be maintained or acceptable alternate must be provided by the Design-Builder.

A minimum width of one (1) foot shall be provided between the traffic lane and the Traffic Barrier Service or Group II Channelizing devices.

The Design-Builder shall not close lanes unless otherwise approved. The Design-Builder shall only coordinate Virginia State Police (VSP) usage as needed for lane closures and traffic changes if approved by VDOT. The Design-Builder shall be responsible for coordinating through VDOT for VSP service. VDOT shall be responsible for all costs incurred by the VSP specific to the Project.

If desired, reductions in the speed limits within the work zones shall be requested and prepared by the Design-Builder in accordance with TE-350, and must be reviewed and approved by the Northern Regional Operations (NRO) Traffic Engineer. This includes a Work Zone Speed Analysis prepared by a Professional Engineer licensed and registered in the Commonwealth of Virginia.

The Design-Builder shall assign a traffic control supervisor to provide work zone traffic control management for the Project.

Flag persons shall be certified according to the Virginia Flagger Certification Program.

2.9.1.1 Allowable Work Hours

Lane or road closures shall be in accordance with the table below. Lane closures above and beyond what is shown below shall be approved by VDOT as part of the Design-Builder's Transportation Management Plan.

Route 29 Lane Closure Hours	
Day	Single Lane Closure
Monday	9:30AM to 3:30PM, 10:00PM to 5:00AM
Tuesday	9:30AM to 3:30PM, 10:00PM to 5:00AM
Wednesday	9:30AM to 3:30PM, 10:00PM to 5:00AM
Thursday	9:30AM to 3:30PM, 10:00PM to 5:00AM
Friday	9:30AM to 2:00PM
Friday to Saturday	10:00PM to 9:00AM
Saturday to Sunday	10:00PM to 8:00AM
Sunday to Monday	10:00PM to 5:00AM

VDOT may consider complete closures of mainline Route 29; however, complete closures can only occur with substantiation of need by the Contractor and written authorization by VDOT. All lane closures shall be coordinated with VDOT Traffic Management Center (TMC) seven (7) days in advance of closure.

Extension of a lane closure time, except as approved by VDOT, is not acceptable. Restoration of traffic shall mean the completion of all construction work, the removal of all

traffic control devices and signs and removal of all workers, materials, and equipment from the roadway.

If the Design-Builder fails to restore traffic lanes, the Design-Builder will not be allowed further lane closures until the causes for the failure are evaluated by VDOT and VDOT concurs that the causes have been corrected by the Design-Builder. A formal submission as to the reasons for the failure to restore traffic lanes within the lane closure restrictions referenced in the table above and the proposed corrective measures shall be provided to VDOT within two (2) days of the occurrence. No modifications to the Contract Price or Contract Time(s) will be granted or considered for these days.

VDOT reserves the right to monitor traffic conditions impacted by the work and to make additional restrictions as may be necessary; i.e., terminate a lane closure early.

Access to all adjacent properties shall be maintained throughout the duration of the project. All private and commercial entrances within the project limits shall remain open for the duration of the project.

All preparatory or exploratory work to any existing facilities including, but not limited to, geotechnical investigations shall follow the Virginia Work Area Protection Manual and the lane closure restrictions referenced in the table above for any planned lane closures.

2.9.1.2 Holiday Restrictions

In addition to the Limitations of Operations defined by Section 108.02 of the Division I Amendments (Part 5) to the Standard Specifications, the Design-Builder shall not be permitted to conduct any operations within the project limits during the following periods:

- New Year Day Holiday shall be from 7:00 AM December 31st of each calendar year until 7:00 AM the next work day following New Year Day of each calendar year, unless the holiday occurs on a Sunday and then the following Monday shall be considered the Holiday.
- Memorial Day Holiday shall be from 7:00 AM Friday prior to Memorial Day of each calendar year until 7:00 AM Tuesday following the Memorial Day of each calendar year.
- Easter Holiday shall be from 7:00 AM on Good Friday of each calendar year until 7:00 AM the following Monday after Easter Sunday.
- Independence Day Holiday shall be from 7:00 AM July 3rd of each calendar year until 7:00 AM the next work day following Independence Day of each calendar year, unless the holiday occurs on a Sunday and then the following Monday shall be considered the Holiday.
- Labor Day Holiday shall be from 7:00 AM Friday prior to Labor Day of each calendar year until 7:00 AM Tuesday following the Labor Day of each calendar year.

- Thanksgiving Day Holiday shall be from 7:00 AM Wednesday prior to Thanksgiving Day of each calendar year until 7:00 AM Monday following the Thanksgiving Day of each calendar year.
- Christmas Day Holiday shall be from 7:00 AM December 23rd of each calendar year until 7:00 AM December 27th of each calendar year.

2.9.1.3 Weekend Restrictions

All weekend lane closures and construction activities are subject to the requirements of Section 2.10.1.1 of this document.

2.9.2 Portable Changeable Message Signs

Portable Changeable Message Signs (PCMS's) shall be used in advance of the work zone on Route 29. The Design-Builder shall provide at least two (2) PCMS's along Route 29, which are to be placed in advance of the Project in each direction. PCMS's shall also be used to provide en-route travel information about planned construction, delays or other sudden changes in travel conditions throughout the Project's duration.

The Design-Builder shall provide notification via portable changeable message signs (one in each direction) for a minimum of one week in advance of any planned lane closures, community entrance closures, ingress/egress diversions and other activities that will impact access and circulation through the communities with the project limits.

2.9.3 Transportation Operations Strategies

The Design-Builder shall follow the Transportation Operations Strategies set-forth in the following sections:

2.9.3.1 Incident Management

In accordance with Section 2.9, the Design-Builder shall submit a TMP for review and approval. The TMP shall address at a minimum the following with respect to incident management:

- 24/7 point of contact for emergency notification of incident by TOC
- Equipment to be utilized in the event a detour is necessary
- Pre-staged detour equipment and materials needs
- Coordination with VDOT NOVA District Maintenance Section
- Signage of detour routes
- Coordination with VSP

The Design-Build Team shall obtain Emergency Tow Wrecker Service for incident management and response to be on-scene during all lane and shoulder closures to remove a disabled vehicle in the work zone. The service shall respond to any incident within the work zone on Route 29 at anytime lanes or shoulders are restricted. The service must be capable of

towing any size vehicle, including light, medium, and heavy vehicles. The wrecker will be placed at a strategic location within the work zone to facilitate rapid removal. The tow wrecker shall be in communication with the Regional TOC. Wrecker service shall already be listed as a qualified wrecker from the VSP Police Assisted Tow list and have Towing & Recovery Association of America - TRAA Class 1 light duty, Class 6 medium duty, and Class 8 Heavy Duty towing vehicles. Towing shall consist of removing the disabled vehicle from the roadway to an approved disposal location. Towing vehicles shall be properly licensed and insured.

The Design-Builder shall have an articulating wheel loader with minimum 3.0 cubic yard bucket and traffic lane control equipment available to assist VDOT Northern Virginia District Maintenance Section in snow removal operations during winter months when lanes or shoulders are restricted. Activities shall be coordinated with the VDOT Northern Virginia District Maintenance Section. Design-Builder is also responsible for coordinating with VDOT Northern Virginia District Maintenance Section on regular maintenance items such as mowing, wildflower beds and accident damage.

2.9.3.2 Backup Vehicle

The Design-Builder shall provide a vehicle equipped with a “BE PREPARED TO STOP” sign (VW-27) to report any queues associated with all lane closures to the Regional TOC. The vehicle shall be highly reflective and be equipped with flashing lights as appropriate. The driver shall be equipped with the ability to communicate with the Regional TOC and project personnel. The backup vehicle shall be used during all lane closures. The intent of this vehicle is to provide as much advanced warning as safely possible to inform motorists of work zone queues.

2.9.3.3 Available Alternate Routes for Incident Management

This segment of Route 29 is paralleled by I-66 and SR 620 (New Braddock Rd) respectively, as well as various other roadways. These routes vary in speed limit, traffic control and number of lanes. These surface streets can be used to navigate around lane closures or incidents in the Project. The Design-Builder shall coordinate with VDOT to determine allowable alternate routes and detours. The Design-Builder shall be responsible for all detour signage and traffic control measures required.

Upon notification from the TOC of an incident requiring a detour, the Design-Builder shall establish the detour within 30 minutes from 6 AM-8 PM daily, critical construction activities, and during the limitation of operations as defined in Section 2.10.1.1. The Design-Builder shall establish the detour within one hour during all other times not referenced. The Design-Builder shall coordinate exclusively with the Regional TOC. The Regional TOC will coordinate with the appropriate State and Local authorities.

Response/Setup times will be based on those recorded at the Regional TOC Traffic Management System.

2.10 Public Involvement/Relations

The Design-Builder shall be responsible for providing a point of contact and phone number for the public to use in calling to request information or express concerns throughout the duration of the project. All information to be released to the public shall be approved by VDOT. The Design-Builder shall also be responsible for coordinating preparation and release of public information with VDOT's Northern Virginia District Office of Public Affairs.

During the Design, Right of Way and Construction Phases, the Design-Builder shall:

- Hold “Pardon our Dust” meeting prior to construction commencement with affected stakeholders. These stakeholders will include but not be limited to local institutions and Fairfax County service providers (Police, Fire and EMS Departments.)
- Hold informal meetings with affected stakeholders when necessary as directed by VDOT. These stakeholders will include but not be limited to local institutions and Fairfax County service providers (Police, Fire and EMS Departments), and Homeowners Associations. Any meetings held will be in accordance with the VDOT Policy Manual for Public Participation in Transportation Projects.
- Provide to VDOT's Project Manager, as directed by VDOT, written information about the project suitable for posting by VDOT on its website, including any significant changes that affect the public. Such information will include a Project overview, plan of work, overall Project schedule and progress, potential impacts to traffic on all roadways within the project limits (i.e., temporary lane closures, ramp reconstruction, milling operations), up-to-date project photos, and contact information. In addition, the above information shall be provided concurrent with the first plan submittal.
- Develop and maintain an email distribution list which will communicate relevant project information to all stakeholders on a quarterly or as-needed basis. The project information to communicate includes, but is not limited to a project overview, plan of work, overall project schedule and progress, potential impacts to traffic on all roadways within the project limits (i.e., temporary lane closures, ramp reconstruction, milling operations), community entrance closures, and ingress/egress diversions. Provide project information to VDOT for review and approval prior to distribution.

During the Construction Phase, the Design-Builder shall:

- Provide an emergency contact list of project personnel and have sufficient manpower and resources available to respond to any onsite emergency, including any work zone incidents.

A public hearing was held for this Project on June 15, 2011. Applicable Public Hearing comments have been compiled and have been incorporated into the plans as deemed necessary by VDOT. Any meetings held will be conducted in accordance with the VDOT Policy Manual for Public Participation in Transportation Projects, revised August 2011.

2.11 Right-of-Way

The Design-Builder, acting as an agent on behalf of the Commonwealth of Virginia (“Commonwealth”), shall provide all right of way acquisition services for the Project’s acquisition of fee right of way and permanent, temporary and utility easements ~~including survey plats~~. Right of way acquisition services shall include certified title reports, appraisal, appraisal review, negotiations, relocation assistance services and parcel closings, to include an attorney’s final certification of title or title insurance. The Design-Builder’s lead right of way acquisition consultant shall be a member of VDOT’s prequalified right of way contracting consultants (listed on VDOT’s website) and the Design-Builder’s right of way team shall include VDOT prequalified appraisers and review appraisers (also listed on VDOT’s website). VDOT will retain authority for approving the scope of the appraisal and the appraiser, just compensation, relocation benefits, and settlements. VDOT must issue a Notice to Commence Right of Way Acquisition to the Design-Builder prior to any offers being made to acquire the property. This represents a hold point in the Design-Builder’s Baseline Schedule. VDOT must also issue a Notice to Commence Construction to the Design-Builder once the property has been acquired and prior to commencing construction on the property. This also represents a hold point in the Design-Builder’s Baseline Schedule. The Design-Builder will **NOT** be responsible for the right of way acquisition costs. As used in this RFP, the term “right of way acquisition costs” means the actual purchase price paid to a landowner for right of way, including fee, any and all easements, and miscellaneous fees associated with closings as part of the Project. All right of way acquisition costs will be paid by VDOT, and shall not be included in the Offeror’s Price Proposal. Notwithstanding the foregoing provision, should additional right of way (whether fee or easements) be required to accommodate Design-Builder’s unique solution and/or Contractor’s means, methods and resources used during construction above and beyond the right of way limits depicted on the conceptual plans included in the RFP Information Package, then all right of way acquisition costs for such additional fee or easements shall be paid by the Design-Builder. These costs would include (but not be limited to) the costs of any public hearings that may be required, actual payments to property owners and all expenses related to the additional acquisitions and associated legal costs as well as any additional monies paid the landowners to reach a settlement or to pay for a court award. In the event additional right of way is needed as a result of an approved scope change request by the Design-Builder, the Design-Builder shall follow the procedures indicated in the “Right of Way Acquisition Guidelines” (Chapter 5 of VDOT’s Right of Way Manual of Instructions; <http://www.virginiadot.org/business/row-default.asp>). Additionally, the Design-Builder is solely responsible for any schedule delays due to additional right of way acquisition associated with the Design-Builder’s design changes and no time extensions shall be granted.

The following responsibilities shall be carried out by either the Design-Builder or VDOT as specified in each bulleted item below:

- The Design-Builder shall acquire property in accordance with all Federal and State laws and regulations, including but not limited to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (the “Uniform Act”) and Titles 25.1 and 33.1 of the 1950 Code of Virginia, as amended. The acquisition of property shall follow the guidelines as established by VDOT and other State and Federal guidelines that are required and the VDOT Right of Way Manual of Instructions and the VDOT Utility Manual of Instructions, as well as IIM-LD-243 and Chapter 12 of the VDOT Survey Manual. All conveyance documents for the acquisition of any property interest shall be accompanied by properly marked plan sheets and profile sheets.
- The Design-Builder may not employ the use of Rights of Entries until the property owner has been made a bona fide offer to acquire the property.
- If the Design-Builder and/or the Right of Way sub-consultant does not follow 49 CFR Part 24 Uniform Relocation and Real Property Acquisition Act of 1970 (The Uniform Act) in the performance of the acquisition and/or relocation processes, or fails to obtain or create any mandatory written documentation in their right of way parcel file, the Design-Builder shall be responsible for any and all expenses determined to be ineligible for reimbursement of federal funding.
- VDOT shall designate a hearing officer to hear any Relocation Assistance appeals. VDOT agrees to assist with any out of state relocation by persons displaced within the rights of way by arranging with such other state(s) for verification of the relocation assistance claim.
- VDOT will entertain the use of relocation incentive plans on projects with significant numbers or critical relocations. Such incentive plans shall be presented to VDOT for approval. If VDOT approves the incentive plan, it will seek Federal Highway Administration approval. Any relocation incentive plan shall be uniformly administered so that all landowners and displaces of a similar occupancy receive fair and equitable treatment. Under no circumstances is a relocation incentive to be used without VDOT’s prior approvals.
- VDOT will entertain the use of protective leasing to ensure the availability of housing or apartments for relocation purposes. Such protective leasing plans must be presented to VDOT for approval prior to their implementation.
- Section 33.1-134 of the Code of Virginia, 1950, as amended, provides that the Commissioner of Highways may acquire lands on which graves are located through either voluntary conveyance or condemnation. In the course of relocating such graves, the Commissioner of Highways, through the Office of the Attorney General, will appoint an attorney to prepare the Order and Petition for the exhumation and re-interment of the graves. The Design-Builder shall be responsible for verifying the number of graves, locating next of kin if possible, acquiring new grave sites and managing the grave

relocations as outlined in Chapter 3.4.7 of the Right of Way Manual of Instructions dated January 1, 2011.

- The Design-Builder shall submit a Project specific Acquisition and Relocation Plan to VDOT for VDOT Right of Way approval prior to commencing right of way activities. No offers to acquire property shall be made prior to the Acquisition and Relocation Plan approval and a Notice to Commence Acquisition. This represents a hold point in the Offeror’s CPM Schedule. The Acquisition and Relocation Plan shall describe the Offeror’s methods, including the appropriate steps and workflow required for title examinations, appraisals, review of appraisals, negotiations, acquisition, and relocation, and shall contain the proposed schedule of right of way activities including the specific parcels to be acquired and all relocations. The schedule shall include activities and time associated with VDOT’s review and approval of just compensation, relocation benefits and administrative settlements. The plan shall allow for the orderly relocation of displaced persons based on time frames not less than those provided by the “Uniform Act.” This plan shall be updated as necessary during the life of the Project and all updates must be submitted to VDOT for approval. The plan approval is based on the Plan providing a reasonable and orderly workflow and the plan being provided to the VDOT Representative as completed.
- A VDOT Representative will be available to make timely decisions concerning the review and approval of just compensation, approval of relocation benefits, approval of administrative settlements and approval of closing or condemnation packages on behalf of VDOT. The VDOT Representative is committed to issuing decisions on approval requests within twenty-one (21) days. This commitment is based on the plan providing a reasonable and orderly workflow and the work being provided to the VDOT representative as complete. Submission of documents requiring VDOT approval shall contain the necessary language and certifications as shown on the examples provided in the Appendix to Chapter 10, “Special Projects”, of the Right of Way Manual.
- The Design-Builder shall obtain access to and use VDOT’s Right of Way and Utilities Management System (“RUMS”) to manage and track the acquisition process. RUMS will be used for Project status reporting; therefore, entries in RUMS shall be made at least weekly to accurately reflect current Project status. VDOT standard forms and documents, as found in RUMS, will be used to the extent possible. Training in the use of RUMS and technical assistance will be provided by VDOT.
- The Design-Builder shall provide a current title examination (no older than sixty (60) days) for each parcel at the time of the initial offer to the landowner. Each title examination report shall be prepared by a VDOT approved attorney or Title Company. If any title examination report has an effective date that is older than sixty (60) days, an update is required prior to making an initial offer to the landowner. A Title Insurance Policy in favor of the Commonwealth of Virginia in form and substance satisfactory to the VDOT shall be provided by the Design-Builder, for every parcel acquired by voluntary conveyance.

- The Design-Builder shall submit a scope of work detailing the type of appraisal to be prepared for each parcel and the name of the proposed appraiser for VDOT review and approval in writing prior to commencing the individual parcel appraisal. The proposed appraiser shall be of an appropriate qualification level to match the complexity of the appraisal scope. The Design-Builder shall prepare appraisals in accordance with VDOT's Appraisal Guidelines. The review appraiser shall be on VDOT's approved fee review appraiser list. Alternatively, the Design-Builder may submit an exception request to use a review appraiser who is not on VDOT's approved review appraisal list for VDOT's approval. VDOT shall issue a final approval of all appraisals.
- Payment documentation is to be prepared and submitted to VDOT with the Acquisition Report (RW-24). VDOT will process vouchers and issue State Warrants\checks for all payments and send to the Design-Builder, who will be responsible for disbursement and providing indefeasible title to VDOT. The Design-Builder shall make payments of benefits to property owners for negotiated settlements, relocation benefits, and payments to be deposited with the court.
- The Design-Builder shall prepare, obtain execution of, and record documents conveying title to such properties to the Commonwealth of Virginia and deliver all executed and recorded general warranty deeds to VDOT. Prior to the recordation of any instrument, VDOT shall review and approve the document. For all property purchased in conjunction with the Project, title will be acquired in fee simple (except that VDOT may, in its sole discretion, direct the acquisition of a right of way easement with respect to any portion of the right of way) and shall be conveyed to the "Commonwealth of Virginia, Grantee" by a VDOT-approved general warranty deed, free and clear of all liens and encumbrances, except encumbrances expressly permitted by VDOT in writing in advance of deed recordation. All easements, except for private utility company easements shall be acquired in the name of "Commonwealth of Virginia, Grantee". Private utility company easements will be acquired in the name of each utility company when the private utility company has prior recorded easements.
- Because these acquisitions are being made on behalf of the Commonwealth, VDOT shall make the ultimate determination in each case as to whether settlement is appropriate or whether the filing of an eminent domain action is necessary, taking into consideration the recommendations of the Design-Builder. When VDOT authorizes the filing of a certificate, the Design-Builder shall prepare a Notice of Filing of Certificate and the certificate assembly. All required documents necessary to file a certificate shall be forwarded along with a prepared certificate to the VDOT Project Manager. Once reviewed, the certificate will be forwarded to Central Office for review and approval. VDOT will execute the certificate, provide the money as appropriate and will return the assembly to the Design-Builder. The Design-Builder shall update the title examination and shall file the certificate.
- When VDOT determines that it is appropriate, the Design-Builder shall be responsible for continuing further negotiations for a maximum ~~minimum~~ of sixty (60) days, in order

to reach settlement after the filing of certificate. After that time the case will be assigned to an outside attorney appointed by VDOT and the Office of the Attorney General. When requested, the Design-Builder shall provide the necessary staff and resources to work with VDOT and its attorney throughout the entire condemnation process until the property is acquired by entry of a final non-appealable order, by deed, or by an Agreement After Certificate executed and approved by VDOT and the appropriate court. The Design-Builder will provide updated appraisals (i.e., appraisal reports effective as of the date of taking) and expert testimony supporting condemnation proceedings upon request by VDOT. Services performed by the Design-Builder or its consultants after an eminent domain action is assigned to an outside attorney will be paid, if and when necessary, under a Work Order in accordance with Article 9 of Part 4 (General Conditions of Contract).

- The Design-Builder will be responsible for all contacts with landowners for rights of way or construction items.
- The Design-Builder shall maintain access at all times to properties during construction.
- The Design-Builder shall use reasonable care in determining whether there is reason to believe that property to be acquired for rights of way may contain concealed or hidden wastes or other materials or hazards requiring remedial action or treatment. When there is reason to believe that such materials may be present, the Design-Builder shall notify VDOT within three (3) calendar days. The Design-Builder shall not proceed with acquiring such property until they receive written notification from VDOT.
- During the acquisition process and for a period of three years after final payment is made to the Design-Builder for any phase of the work, and until the Commonwealth of Virginia has indefeasible title to the property, all Project documents and records not previously delivered to VDOT, including but not limited to design and engineering costs, construction costs, costs of acquisition of rights of way, and all documents and records necessary to determine compliance with the laws relating to the acquisition of rights of way and the costs of relocation of utilities, shall be maintained and made available to VDOT for inspection and/or audit. This also would apply to the Federal Highway Administration on projects with federal funding. Throughout the design, acquisition and construction phases of the Project, copies of all documents/correspondence shall be submitted to both the Central Office and respective Regional Right of Way Office.
- Prior to Project completion, the Design-Builder shall provide and set VDOT RW-2 right of way monuments within the Project limits.
- Any existing fencing impacted by the Design-Builder's design and construction activities shall be restored or replaced in the same configuration relative to the improvements as the existing fencing. Any new VDOT fencing shall be Std. FE-CL.

- The Design-Builder shall notify VDOT of any and all encroachments (temporary or permanent) within the right-of-way prior to final acceptance.

2.12 Utilities

The Design-Builder shall be responsible for coordination of the Project construction with all utilities that may be affected. The Design-Builder shall be responsible for coordinating the work of the Design-Builder, its subcontractors and the various utilities. The resolution of any conflicts between utilities and the construction of the Project shall be the responsibility of the Design-Builder. No additional compensation or time will be granted for any delays, inconveniences, or damage sustained by the Design-Builder or its subcontractors due to interference from utility owners or the operation of relocating utilities or betterments. All cost for utility relocations shall be included in the Offeror's Price Proposal. Any utility betterments shall not be included in the Offeror's Price Proposal but shall be reimbursed to the Design-Builder through agreement with the requesting utility owner. The Offeror shall contact each utility owner prior to submitting bids to determine the scope of each utility owner's relocation.

The Design-Builder shall be responsible for utility designations, utility location (test holes), conflict evaluations, cost responsibility determinations, utility relocation designs, utility relocations and adjustments, utility reimbursement, replacement land rights acquisition and utility coordination required for the Project. The Design-Builder shall be responsible for all necessary utility relocations and adjustments to occur in accordance with the accepted Baseline Schedule. All efforts and cost necessary for utility designations, utility location (test holes), conflict evaluations, cost responsibility determination, utility relocation designs, utility relocations and adjustments, utility reimbursements, replacement land rights acquisition and utility coordination shall be included in the Offeror's Price Proposal; provided, however, that the compensation paid to landowners for replacement land rights will be paid by VDOT and shall **NOT** be included in the Offeror's Price Proposal.

The Design-Builder shall make all reasonable efforts to design the Project to avoid conflicts with utilities, and minimize impacts where conflicts cannot be avoided. The Design-Builder shall in no way disturb the Verizon duct bank during construction. The Design-Builder shall coordinate with Verizon and VDOT to ensure the structural integrity of the duct bank is not compromised as a result of the bridge design, detailing and construction.

The Design-Builder shall initiate early coordination with all utilities located within the Project limits. The Design-Builder shall identify and acquire any replacement utility easements needed for all utilities necessary for relocation due to conflicts with the Project.

The Design-Builder shall provide all utilities with roadway design plans as soon as the plans have reached a level of completeness adequate to allow them to fully understand the Project impacts. The utility companies will use the Design-Builder's design plan for preparing relocation plans and estimates. If a party other than the utility prepares relocation plans, there shall be a concurrence box on the plans where the utility signs and accepts the relocation plans as shown.

The Design-Builder shall coordinate and conduct a preliminary utility review meeting with all affected utility companies to assess and explain the impact of the Project. VDOT's Project Manager and Regional Utility Manager (or designee) shall be included in this meeting.

The Design-Builder shall verify the prior rights of each utility's facilities if claimed by a Utility owner. If there is a dispute over prior rights with a utility, the Design-Builder shall be responsible for resolving the dispute. The Design-Builder shall prepare and submit to VDOT a Preliminary Utility Status Report within 120 days of the Date of Commencement that includes a listing of all utilities located within the Project limits and a conflict evaluation and cost responsibility determination for each Utility. This report shall include copies of existing easements, as-built plans, or other supporting documentation that substantiates any compensable rights of the utilities.

The Design-Builder shall obtain the following from each utility that is located within the Project limits: relocation plans including letter of "no cost" where the utility does not have a compensable right; utility agreements including cost estimate and relocation plans where the utility has a compensable right; letters of "no conflict" where the utility's facilities will not be impacted by the Project.

The Design-Builder shall review all relocation plans to ensure that relocations comply with the current VDOT Utility Manual, Utility Relocation Policies and Procedures and VDOT's Land Use Permit Manual. The Design-Builder shall also ensure that there are no conflicts with the proposed roadway improvements, and ensure that there are no conflicts between each of the utility's relocation plans. The Design-Builder shall prepare and submit to VDOT all relocation plans. The Design-Builder shall assemble the information included in the relocation plans in a final and complete form and in such a manner that VDOT may approve the submittals with minimal review. The Design-Builder shall meet with VDOT's Regional Utilities Office within 45 days of the Date of Commencement to gain a full understanding of what is required with each submittal. The Design-Builder shall receive written approvals from VDOT prior to authorizing utilities to commence relocation construction. The utilities shall not begin their relocation work until authorized by the Design-Builder. Each relocation plan submitted shall be accompanied by a certification from the Design-Builder stating that the proposed relocation will not conflict with the proposed roadway improvement and will not conflict with another utility's relocation plan.

The design builder will create utility agreements and transmit them for signatures for any relocation work needed for the public utilities as outline in the VDOT Utility Manual. These utilities should include Fairfax DPW sewer line as well as Fairfax Water waterline for this project.

Any relocation work within the project limits to be performed by Fiberlight will be at 100% utility cost. This line was placed with knowledge of this project and a waiver of rights was included with the permit package making the responsible for 100% of the cost of any relocation needed for this project.

At the time that the Design-Builder notifies VDOT that the Design-Builder deems the Project to have reached Final Completion, the Design-Builder shall certify to VDOT that all

utilities have been identified and conflicts have been resolved and that those utilities with compensable rights or other claims related to relocation or coordination with the Project have been relocated and their claims and compensable rights satisfied or shall be satisfied by the Design-Builder.

The Design-Builder shall accurately show the final location of all utilities on the as-built drawings for the Project.

Known utility owners and their respective contact numbers include but are not limited to the following:

Water

Fairfax County Water Authority
8560 Arlington Blvd
Merrifield, Virginia 22116
Contact: Jeanie Swim
Telephone: 703-698-5600

Telephone

Verizon/Bell Atlantic
2980 Fairview Park Dr
Falls Church, Virginia 22042
Contact: Bill Suter
Telephone: 703-886-6487

MCI / Verizon Business
12379A Sunrise Valley Drive
Reston, VA 20191 Contact: David Fisher
Telephone: 703-391-5782

Shentel
500 Shentel Way
PO Box 459
Edinburg, VA 22824
Contact: Tommy Keeler
Telephone: 540-984-4850

Fiberlight
610 Herndon Parkway
Suite 250
Herndon, VA 20170
Contact: Chris Russell
Telephone: 571-323-7666

Electric

Dominion Virginia Power

3072 Centreville Road
Herndon, Virginia 20171
Contact: Verna Love
Telephone: (571)203-5147

Cable Television:

Cox Communications
3080 Centreville Road
Herndon, Virginia 20171
Contact: Jeff Acertio
Telephone: (703)480-7812

Natural Gas:

Washington Gas
6801 Industrial Rd
Springfield, Virginia 22151
Contact: Allen Melliza
Telephone: (703)750-4256

NOVA Traffic Operations Center:

Virginia Department of Transportation
4975 Alliance Drive
Fairfax, Virginia 22030
Telephone: 703-877-3450

2.13 Quality Assurance / Quality Control (“QA/QC”)

The Design-Builder shall submit its Quality Assurance/ Quality Control (QA/QC) Plan for both design and construction to VDOT for review and approval at the meeting held after the Date of Commencement as set forth in Part 4, Section 2.1.2. Along with the QA/QC Plan submittal, the Design Manager and Quality Assurance Manager (QAM) shall provide a presentation of the QA/QC Plan for both design and construction utilizing Project related scenarios. Project scenarios shall include, but not be limited to:

- Preparatory Inspection Meeting requirements, including incorporation of at least one each, Witness and Hold Point, as set forth in Sections 5.3 and 5.14 of the Department’s guidance document for Minimum Requirements for Quality Assurance and Control Requirements on Design-Build and Public-Private Transportation Act Projects, January 2012 (January 2012 QA/QC Guide);
- At least one (1) material which VDOT retains responsibility for testing as identified in Table 5-2, January 2012 QA/QC Guide;
- Situation arising requiring the issuance of a Non-Conformance Report and subsequent review of the report, including completion of corrective measures and the issuance of a Notice of Correction of non-conformance work with proper log entries and proper interface with auditing and recovery requirements as set forth in Section 5.10 of the January 2012 QA/QC Guide for nonconforming work resulting from:

- defective equipment
- construction activities/materials which fail to conform as specified;
- Inspection documentation capturing requirements as set forth in Sections 5.20 and 5.21 of the January 2012 QA/QC Guide; as well as inspection of foundation and pavement subgrades that are to be performed and certified by the Design-Builder's licensed geotechnical engineer in accordance with the Contract requirements;
- Application for payment for Work Package which includes work element, including review and approval by Quality Assurance Manager;

Detail two (2) sample entries in Materials Notebook showing completion of Form C-25, including subsequent submission and review by Department Project Manager as set forth in Section 5.21 of the January 2012 QA/QC Guide. Refer to Section 803.73 of VDOT's Manual of Instruction for Materials Division, Form TL-142S, for an example of a completed Materials Notebook and VDOT Materials Division Memorandum Number MD299-07 for Materials Acceptance – October 4, 2007)

2.13.1 Design Management

The Design-Builder is responsible for design quality in accordance with the January 2012 QA/QC Guide. The Design Manager, assigned by the Design-Builder, shall be responsible for establishing and overseeing a QA/QC Program for all pertinent disciplines involved in the design of the Project, including review of design, working plans, shop drawings, specifications, and constructability of the Project. This individual shall report directly to the Design-Builder's Project Manager, and is responsible for all of the design, inclusive of QA and QC activities. Members of the Design QA and QC team are responsible for review of all design elements to ensure the development of the plans and specifications are in accordance with the requirements of the Contract Documents. Design QA should be performed by one or more member(s) of the lead design team that are independent of the Design QC. The project design control plan will provide VDOT assurance that the design plans and submittals will meet all contract requirements.

Appendix 2 of the January 2012 QA/QC Guide provides minimum requirements that shall be met for development of the Design QA/QC Plan.

2.13.2 Construction Management

The Design-Builder shall develop, operate, and maintain a Construction QA/QC Plan in accordance with VDOT's January 2012 QA/QC Guide. The Design-Builder shall have the overall responsibility for both the QA and QC activities and shall be responsible for all QA activities and QA sampling and testing for all materials used and work performed on the Project. These QA functions shall be performed by an independent firm that has no involvement in the construction QC program/activities. There shall be a clear separation between QA and construction, including separation between QA inspection and testing operations and construction QC inspection and testing operations, including testing laboratories. Two independent, AMRL certified testing laboratories will be required, one for QA testing and one for QC testing.

The QAM shall have the authority to enforce requirements of the Contract Documents, and Reference Documents, when deficient materials or unsatisfactory finished products fail to conform to Contract Documents and Reference Documents. The QAM, in accordance with his/her assignment, shall monitor, and inspect the construction work as it progresses. The Design-Builder shall establish and maintain a Quality Assurance Auditing and Nonconformance Recovery Plan (AR Plan) for uniform reporting, controlling, correction and disposition and resolution of nonconformance (including disputed nonconforming items) issues that may arise on the Project. The Design-Builder's AR Plan shall establish a process for review and disposition of nonconforming workmanship, material, equipment or other construction and design elements of the Work including the submittal Design Review process. All deficiencies (hereinafter referred to as a Non-Conformance), including those pertaining to rules, regulations, and permit requirements, shall be documented by the QAM. A Non-Conformance Report ("NCR") referenced by a unique number, shall be forwarded to the Contractor and VDOT within 24 hours of discovery of the Non-Conformance. Non-conformance procedures are provided in Section 5.10.5 of the January 2012 QA/QC Guide.

The Design-Builder will also be responsible for providing QA and QC testing for all materials manufactured off-site, excluding the items listed below:

- Prestressed Concrete Structural Elements (beams, girders (VDOT adopted Bulb-T sections), and piles).
- Structural Steel Elements (beams and girders).
- Pipe (concrete, steel, aluminum and high density polyethylene) for culverts, storm drains and underdrains.
- Precast Concrete Structures.
- Asphalt Concrete Mixtures.
- Aggregate (dense and open graded mixes).
- Metal Traffic Signal and Light Poles and Arms

VDOT will provide plant QA and plant QC inspection and/ or testing of these items. In the event that VDOT determines that materials fail to meet the tolerances in the Road and Bridge specifications, a NCR will be issued by the VDOT Project Manager and addressed to the Design-Builder's QAM for resolution. The Design-Builder is required to submit documentation of the source of materials, including the source of each material to be incorporated into the project and the acceptance method that will be used for the material. A VDOT Form C-25 may be used to meet this requirement; however, the Design-Builder is required to submit a VDOT Form C-25 for all materials that VDOT retains responsibility for testing. The source of materials, C-25 is for informational purposes only and will not be approved or rejected by VDOT since it is the Design-Builder's responsibility to obtain materials that meet the contractual requirements. The Design-Builder will be responsible for providing QA and QC testing of all off-site materials that are not identified above, including materials obtained from off-site soil borrow pits.

The Design-Builder's QAM shall report directly to the Design-Builder's Project Manager and be independent of the Design-Builder's physical construction operations. The QAM shall establish quantities prior to commencing construction, and provide VDOT a total number of QC,

QA, Independent Assurance (IA), Independent Verification Sampling and Testing (IVST), Owner's (the Department) Independent Assurance (OIA), and Owner's Independent Verification Sampling and Testing (OIVST) tests required as a result of the quantities and the sampling and testing requirements as set forth in Tables A-3 and A-4 of the January 2012 QA/QC Guide. VDOT will provide all OIA and OIVST tests and, therefore, final determination of the actual number of OIA and OIVST tests to be performed will be made by VDOT based on these quantities.

The QAM shall be responsible for the QA inspection and testing of all materials used and work performed on the Project to include observing the Contractor's QC activities, maintaining the Materials Notebook (including adherence to the Special Provision for Design-Build Tracking (DBT) numbers included in the RFP Information Package), documentation of all materials, sources of materials and method of verification used to demonstrate compliance with the Contract requirements. This includes all materials where QA testing is to be performed by VDOT. The QAM shall be vested with the authority and responsibility to stop any work not being performed according to the Contract requirements. The construction QA and QC inspection personnel shall perform all of the construction inspection and sampling and testing work that is normally performed by VDOT, as prescribed in the Construction Manual, Inspection Manual, Materials Manual of Instructions and all other applicable Reference Documents. This includes the documentation of construction activities and acceptance of manufactured materials.

The QAM shall assign a Lead QA Inspector to the Project prior to the start of construction. This individual, who must be on the site for the duration of construction of the Project, shall be responsible to observe construction as it is being performed, to include all QC activities to ensure inspection and testing, and correction of any non-conformities of the Work are being performed in accordance with the Contract requirements. If needed, the Lead QA Inspector shall be supported by other QA inspectors under his/her direction to ensure all construction work and QC activities are being observed. The Lead QA Inspector shall report directly to the QAM.

All sampling and testing should be performed by a laboratory that is accredited in the applicable AASHTO procedures by the AASHTO Accreditation Program (AAP). For test methods not accredited by AAP, the laboratory must comply with AASHTO R18 (most current Edition) and must be approved by the Department at its sole discretion. Two independent testing laboratories will be required, one for QA testing and one for QC testing. The entity(ies) performing QA operations, inspections, sampling and laboratory testing and the entity(ies) performing QC operations, inspections, sampling and laboratory testing shall be unique and independent from one another.

All construction QA and QC personnel shall hold current VDOT materials certifications when testing hydraulic cement concrete, asphalt concrete, soils and aggregate, pavement markings and for the safety and use of nuclear testing equipment, as required by the Road and Bridge Specifications. The QA programs must be performed under the direction of the QAM. The QC programs should be performed under the direction of the Construction Manager. Substitution of Construction Manager and the QAM shall require VDOT approval. In addition, VDOT shall have the right to order the removal of any construction QA and QC personnel to

include the QAM and the Construction Manager for poor performance at the sole discretion of the VDOT Project Manager. The QA/QC plan shall include rapid reporting of non-compliance to the VDOT Project Manager, and the remedial actions to be taken as discussed in Section 105.12 of Part 5.

The Design-Builder shall provide, prior to Final Application for Payment, a complete set of Project records that include, but are not limited to the following:

- Project correspondence
- Project diaries
- Test reports
- Invoices
- Materials books
- Certified survey records
- DBE/EEO records
- Warranties
- As-Built Drawings
- Special Tools, etc.

2.14 Plan Preparation

2.14.1 Geopak and MicroStation

When the Design-Builder is given the Date of Commencement, they will be furnished with the following software and files which run in WindowsNT or WindowsXP only: Geopak (current version used by VDOT), MicroStation (current version used by VDOT) and VDOT Standard Resources Files, and all the design files used to develop the RFP roadway and bridge plans including aerial images and updated survey files.

2.14.2 Software License Requirements

VDOT shall furnish license(s) for all the software products VDOT makes available to the Design-Builder. The License(s) will be supplied upon request by the Design-Builder, based on the data provided on a completed Software License Form, LD-893, and subsequently reviewed and approved by the VDOT Project Manager.

All License(s) are provided for use on the Project detailed on the request only for the duration specified for that Project. Any adjustment made to the Project schedule will be taken into consideration in adjusting the time the license(s) are available. Justification for the number of license(s) requested **MUST** include the estimated number of total computer hours for the task of design, detailing, relating Project management and other computer based engineering functions requiring the software requested.

The appropriate use of all license(s) provided to the Design-Builder will become the responsibility of the Design-Builder regardless of who on the team uses the license(s). The

Design-Builder will be responsible for keeping track of the license(s) provided to them or a team member and the prompt return of the license(s) and removal of the software from any system used solely for the Project for which it was obtained.

2.14.3 Drafting Standards

All plans shall be prepared in U.S. customary units and in accordance with the most recent version of the VDOT's Road Design Manual, Vol. I, VDOT's CADD Manual, VDOT's I&IM, VDOT's Traffic Engineering Design Manual and VDOT's Manual of Structure and Bridge Division, Vol. V, Part 2, Design Aids and Typical Details.

The approved plans shall be furnished by the Design-Builder with appropriate signature blocks and Professional Engineer seal on each sheet indicating approval for right of way or construction as applicable.

2.14.4 Electronic Files

All plans shall also be submitted in electronic format using the provided versions of MicroStation CADD software. Files shall be submitted in both DGN & PDF formats. VDOT will furnish electronic files of all applicable standard detail sheets upon request by Design-Builder. The files will use standard VDOT cell libraries, level structures, line types, text fonts, and naming conventions as described in the most recent version of the VDOT CADD Manual and VDOT's Manual of the Structure and Bridge Division, Vol. V- Part 2, Design Aids and Typical Details. Files furnished to Design-Builder in electronic format shall be returned to VDOT and removed from Design-Builder and its designer's computer equipment upon completion of this Project.

2.14.5 Plan Submittals

In addition to electronic files as described in Section 2.15.4 above, the Design-Builder shall prepare and distribute hard copy paper plans in the quantities as specified below, for each of the following deliverables (at a minimum, as other submittals and/or work packages may be necessary or desired):

- Right of Way Plans (if applicable)
- Released for Construction Plans
- Right of Way and/or Construction Revisions
- Record Plans (As-Built)
- Approved Shop Drawings
- Design Calculations

The Right of Way and/ or Construction plans may be submitted for approval in logical subsections (such as from bridge to bridge) and consisting of work packages such as: 1) clearing and grubbing along with erosion and siltation control, grading and drainage, 2) paving, and 3) traffic control. Individual bridge plans may be submitted in logical components such as: 1) foundation, 2) remaining substructure, and 3) superstructure. A submittal schedule and planned

breakdown of work packages shall be submitted to VDOT for review and approval as part of the planned Project Baseline schedule.

Right of Way and/ or Construction Plans shall be accompanied by a VDOT LD-436 checklist filled out as appropriate for the specific submittal, and a written notice from the Design Builder to include the following:

- The logical subsections or work packages for which review and approval is being requested
- Confirmation that the submittal has been checked and reviewed in accordance with the Design-Builder’s approved QA/QC plan.
- Confirmation that the submittal either meets all requirements of the Contract Documents and Reference Documents or that any deviations from the Contract Documents and Reference Documents have been identified and previously approved by VDOT.

The Design-Builder shall submit all Right of Way and/or Construction plans to VDOT. VDOT shall receive six (6) full-size sets and six (6) half-size sets of each submission, with the exception of the Released for Construction Plans (see Section 2.15.8 below). The plan submissions shall be delivered to the following addresses:

VDOT
Address: Virginia Department of Transportation
4975 Alliance Drive
Fairfax, VA 22030
Attention: Mark Gibney, P.E.

VDOT shall have the right to review all Right of Way and Construction Plans and provide comments regarding compliance with the requirements of the Contract Documents and Reference Documents. The Design-Builder shall be responsible for satisfying all such comments. Formal responses to VDOT comments shall be provided in subsequent submittals.

VDOT has the right to disapprove any design approach that is not in compliance with the requirements of the Contract Documents and Referenced Documents.

VDOT’s written approval of any deviations from requirements of the Contract Documents and Reference Documents shall be attached to the plans submitted for review.

2.14.6 Right of Way Plans

Right of Way Plans and any associated Design Calculations shall be submitted to VDOT for review. The time frame for plan review and approval shall be in accordance with the requirements of the Contract Documents. All VDOT comments must be adequately addressed before the Right of Way Plans will be approved. Notice to Commence Right of Way Acquisition will be granted in accordance with Section 2.13 above. The Design-Builder shall be responsible

for the design details and ensuring that the design and right of way acquisition work are properly coordinated.

2.14.7 Construction Plans

Construction Plans, and any associated Design Calculations, shall be submitted to VDOT for review. The time frame for plan review and approval shall be in accordance the requirements of the Contract Documents. All VDOT comments must be addressed to the satisfaction of the commentator before Construction Plans are recommended for approval to the Chief Engineer. This plan milestone includes plans that may be submitted as soon as sufficient information is available to develop Construction Plans for certain portions or elements of the Project (or work packages). The Design-Builder shall meet commitments for review and approval by other entities/agencies as specified in other portions of the RFP and its attachments. The Design-Builder shall be responsible for the design details and ensuring that the design and construction work are properly coordinated.

2.14.8 Released for Construction Plans

Released for Construction Plans are those that are issued for construction after approval by VDOT's Chief Engineer. Notice to Commence Construction will only be issued by the VDOT Project Manager upon approval of the Construction Plans (or Work Packages) by the Chief Engineer.

The Released for Construction Plans shall be distributed to VDOT. VDOT shall receive three (3) full-size set and three (3) half-size sets of Released for Construction Plans, along with all electronic files. The plans shall be delivered to the following addresses:

VDOT
Address: Virginia Department of Transportation
4975 Alliance Drive
Fairfax, VA 22030
Attention: Mark Gibney, P.E.

2.14.9 Record (As-Built) Plans

The final plan milestone is Record (As-Built) Plans. As-Built Plans shall be prepared, signed and sealed by a Professional Engineer licensed in Virginia, and submitted to VDOT with the final application for payment. These plans will show all adjustments and revisions to the Construction Plans made during construction and serve as a permanent record of the actual location of all constructed elements.

2.14.10 Plan Deliverables

The Design-Builder shall prepare Hard Copy paper plans and Electronic plans (DGN & PDF) formats on CD or other approved media for each of the following deliverables:

- Approved Construction Plans
- Design Calculations
- Supporting Calculations and Computations for Drainage Design, Erosion and Sediment Control Measures and Stormwater Management.
- Final Hydraulic and Hydrologic Report
- Working/Shop Drawings
- Record Plans (As-Built)
- Right of Way ~~Plats~~Plans
- Bridge Design/Analysis and Load Rating Reports

2.15 Monthly Progress Meetings

Design-Builder shall participate in monthly progress meetings. During such meetings, progress during the prior month shall be reviewed. The Design-Builder shall collect information from any key subcontractors/sub-consultant responsible for work completed during the specified duration and work scheduled during the upcoming reporting duration. These meetings shall be attended by the Design-Builder's project manager, construction manager, QAM and design manager, as well as other key personnel from the design and construction firms defined within the Offeror's proposal and Department representative's designated by the VDOT Project Manager. Meetings will occur monthly beginning the month after the issuance of the Notice to Proceed. Design-Builder shall be responsible for preparing, maintaining and distributing minutes of the meetings to all attendees for review, comment and/or approval. The meeting minutes shall be provided to the Department within two calendar days of the monthly progress meeting.

2.16 Virginia Occupational Safety and Health Standards

The Project shall comply with Virginia Occupational Safety and Health Standards in accordance with Section 110.05 of the Division I Amendments to the Standard Specifications.

At a minimum, all Contractor personnel shall comply with the following, unless otherwise determined unsafe or inappropriate in accordance with OSHA regulations:

- Hard hats shall be worn while participating in or observing all types of field work when outside of a building or outside of the cab of a vehicle, and exposed to, participating in or supervising construction.
- Respiratory protective equipment shall be worn whenever an individual is exposed to any item listed in the OSHA Standards as needing such protection unless it is shown the employee is protected by engineering controls.

- Adequate eye protection shall be worn in the proximity of grinding, breaking of rock and/or concrete, while using brush chippers, striking metal against metal or when working in situations where the eyesight may be in jeopardy.
- Approved high visibility Safety apparel shall be worn by all exposed to vehicular traffic and construction equipment.
- Standards and guidelines of the current Virginia Work Area Protection Manual shall be used when setting, reviewing, maintaining, and removing traffic controls.
- Flaggers shall be certified in accordance with the Virginia Flagger Certification Program.
- No person shall be permitted to position themselves under any raised load or between hinge points of equipment without first taking steps to support the load by the placing of a safety bar or blocking.
- Explosives shall be purchased, transported, stored, used and disposed of by a Virginia State Certified Blaster in possession of a current criminal history record check and a commercial driver's license with hazardous materials endorsement and a valid medical examiner's certificate. All Federal, State and local regulations pertaining to explosives shall be strictly followed.
- All electrical tools shall be adequately grounded or double insulated. Ground Fault Circuit Interrupter (“GFCI”) protection must be installed in accordance with the National Electrical Code (“NEC”) and current Virginia Occupational Safety and Health agency (“VOSH”) standards. If extension cords are used, they shall be free of defects and designed for their environment and intended use.
- No person shall enter a confined space without training, permits and authorization.
- Fall protection is required whenever an employee is exposed to a fall six feet or greater.
- All vehicles with an obstructed view when backing shall be equipped with a backup alarm or ground guide.
- All equipment and materials shall be stored outside of the clear zone when not in use.

3.0 ATTACHMENTS

The following attachments are specifically made a part of, and incorporated by reference into, these Technical Information & Requirements:

- ATTACHMENT 2.2 -- DESIGN CRITERIA TABLE
- ATTACHMENT 2.3 -- ADDITIONAL FOUNDATION CRITERIA

All additional information is included in the RFP Information Package – CD referred to in Part 1, Section 2.6 of this RFP.

END OF PART 2
TECHNICAL INFORMATION & REQUIREMENTS